

EVALUATION OF SIX SITES AS POTENTIAL CONSERVATION LANDS

MARICOPA SUN SOLAR PROJECT, KERN COUNTY, CALIFORNIA

March 2014



Quad Knopf

EVALUATION OF SIX SITES AS POTENTIAL CONSERVATION LANDS Maricopa Sun Solar Project, Kern County, California

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EXECUTIVE SUMMARY

Maricopa Sun, LLC (Project Administrator) is proposing to develop a solar complex (Maricopa Sun Solar Complex [Project]) in southern Kern County, California. The Project currently consists of seven Solar Sites that total 3,798.3 acres. The development of those parcels will require local, regional, and state approvals. As part of that approval process, compensation for loss of sensitive habitat and special status species is required.

Affiliates of the Project Administrator own several parcels of land that contain various levels of habitat value and that can contribute to the compensatory mitigation obligation that is required for the development of the Solar Sites. These potential Conservation Sites total 1,894.4 acres and consist of study Site 1-C (656.6 acres, APNs 220-120-14 and 220-120-15), Site 3-C (80.4 acres, APN 220-110-10), Site 3-C2 (152.9 acres, APN 220-110-08), Site 9-C (180.6 acres, APNs 220-201-02 and 220-050-42), Site 10-C (176.2 acres, APN 220-201-05), and Site 17-C (647.7 acres, APN 239-150-11), all of which are located within southwestern Kern County, California. These sites, with the exception of Site 17-C, are situated approximately three miles northeast of the unincorporated community of Maricopa. Site 17-C is located approximately 6.5 miles southeast of Maricopa.

Focused biological surveys were conducted for Sites 1-C, 3-C, 3-C2, 9-C, and 10-C, and a preliminary biological survey was conducted on Site C-17 to evaluate their suitability as conservation lands, and to begin establishing area-specific baseline biological information. Focused biological surveys consisted of protocol-level blunt nosed leopard lizard surveys, San Joaquin kit fox surveys, small mammal trapping studies, vegetation surveys, raptor surveys, and wetland delineation surveys. A preliminary survey on Site 17-C focused on evaluating the site for its suitability as compensatory land, but extensive protocol surveys were not completed due to the relatively pristine condition of the Site.

The study sites are located in a region that once supported a wide variety of plants and wildlife, many of which have been listed as threatened, endangered, or otherwise of special concern due to habitat loss resulting from urban, agricultural, and oil field development. In general, these species exist primarily in scattered, isolated remnants of native habitat within the San Joaquin Valley. However, there are large expanses of native habitat to the south and west of the Project area that provide significant value to these species. This area includes a core population of the San Joaquin kit fox (*Vulpes macrotis mutica*), extensive areas inhabited by the blunt-nosed leopard lizard (*Gambelia sila*); and extensive areas inhabited by Nelson's antelope squirrel (*Ammospermophilus nelsoni*), burrowing owls (*Athene cunicularia*), and other species of concern. The Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*) occurs only in scattered, isolated, and small habitat patches on the San Joaquin Valley floor. A significant east-west linkage corridor for the San Joaquin kit fox that is south of the Project area and the California Aqueduct provides an east-west linkage corridor extending around the Project area.

Sensitive biological resources are present on and in the vicinity of the study sites. Sightings, captures, or other evidence of special status species on or adjacent to the six study sites indicate that five species, which are covered in the Maricopa Sun, LLC Habitat Conservation Plan

(MSHCP) and for which compensatory habitat needs to be provided, are present on or adjacent to the proposed Solar Sites:

- San Joaquin kit fox, federally endangered and state threatened;
- Tipton kangaroo rat, federally and state endangered species;
- Nelson's antelope squirrel, state threatened;
- Western burrowing owl, state Species of Concern; and
- Blunt-nosed leopard lizard, federally endangered, state endangered, and state fully protected.

The proposed Solar Site parcels total 3,798.3 acres of repeatedly disked lands that provide dispersal habitat for the San Joaquin kit fox, and perching and limited foraging habitat for the burrowing owl. The Tipton kangaroo rat, Nelson's antelope squirrel, and blunt-nosed leopard lizard do not occur within the proposed solar development footprint. Other special status species that were noted on or adjacent to the Solar Sites include the Le Conte's thrasher (*Toxostoma lecontei*), loggerhead shrike (*Lanius ludovicianus*), Blainville's horned lizard (*Phrynosoma blainvillii*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), American badger (*Taxidea taxus*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), California horned lark (*Eremophila alpestris actia*), northern harrier (*Circus cyaneus*), and golden eagle (*Aquila chrysaetos*).

The study sites that are proposed for conservation provide habitat values for all of the Project's Covered Species, including the San Joaquin kit fox, Tipton kangaroo rat, Nelson's antelope squirrel, western burrowing owl, and blunt-nosed leopard lizard. These sites currently provide habitat that is equal in quality or higher in quality than the disked lands occurring on the proposed Solar Sites. The proposed Conservation Sites provide 1,894.4 acres of San Joaquin kit fox habitat, 85.69 acres of Tipton kangaroo rat habitat, 730.95 acres of Nelson's antelope squirrel habitat, 1,894.4 acres of western burrowing owl habitat, and 730.95 acres of blunt-nosed leopard lizard habitat. Other special-status species are also associated with these sites.

The compensatory mitigation provided by these lands exceeds the needed amount for some species, but does not meet the compensatory requirements needed for other species. The conservation of 730.95 acres of blunt-nosed leopard lizard habitat, 85.69 acres of Tipton kangaroo rat habitat, and 730.95 acres of Nelson's antelope squirrel habitat exceed that which is needed. Alternatively, the 1,894.4 acres of San Joaquin kit fox and western burrowing owl habitat that would be provided by the conservation of these sites do not meet the compensatory mitigation needs for these species, even though much of the lands proposed for mitigation exceed the quality of the habitat that would be lost to solar development. However, additional project mitigation will be provided, including establishment of managed Movement Corridors among the Solar Sites, and the permanent conservation of all Solar Site lands once the Project is decommissioned. In combination, the total conservation acreage and Movement Corridors would meet the conservation needs of the Project.

1.0 INTRODUCTION

1.1 Purpose of the Report

Maricopa Sun, LLC is proposing to develop a solar complex on seven Solar Sites totaling approximately 3,798.3 acres in southwestern Kern County, California (Figures 1 and 2). The development of those parcels will require local, regional, and state approvals. As part of that approval process, compensation for loss of habitat and special status species is needed. This report was prepared to establish baseline biological information on six potential Conservation Sites (study sites) and to evaluate their suitability for conservation purposes.

1.2 Project Area

The Project area is located at the southern end of San Joaquin Valley within southwestern Kern County, California, approximately three miles northeast to approximately 6.5 miles southeast of the unincorporated community of Maricopa (Figure 1). The study sites are located west of Interstate 5 (I-5), and can be accessed from South Lake Road, Cadet Road, and Copus Road, and several other unfarmed access roads (Figure 2). Six study sites totaling 1,894.4 acres were evaluated to determine their potential for contributing to the compensatory mitigation needs of the Project (Table 1).

Table 1
Maricopa Sun Solar Complex: Study Sites

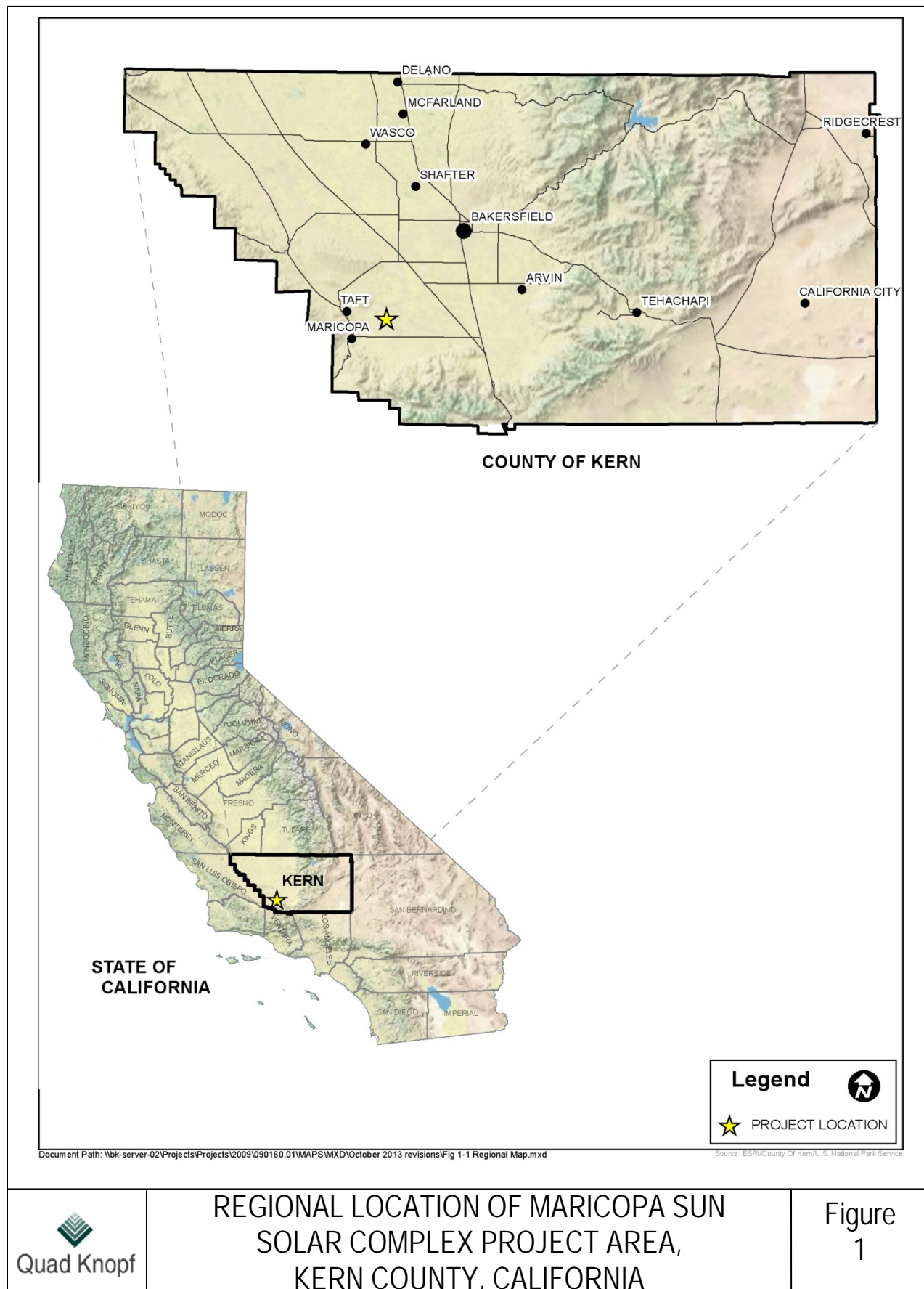
Site Numbers	APN	Township, Range, Sec.	Acreage
Site 1-C	220-120-(14-15)	T.32S., R.25E., Sec.19 ¹	656.6
Site 3-C	220-110-10	T.32S., R.25E.,Sec.23 ¹	80.4
Site 3-C2	220-110-08	T.32S., R.25E.,Sec.23 ¹	152.9
Site 9-C	220-201-02, 220-050-42	T.12N., R.23W., Sec.29 ²	180.6
Site 10-C	220-201-05	T.12N., R.23W., Sec.33 ²	176.2
Site 17-C	239-150-11	T. 11N., R.23W., Sec.13 ²	647.7
Total Acreage			1,894.4

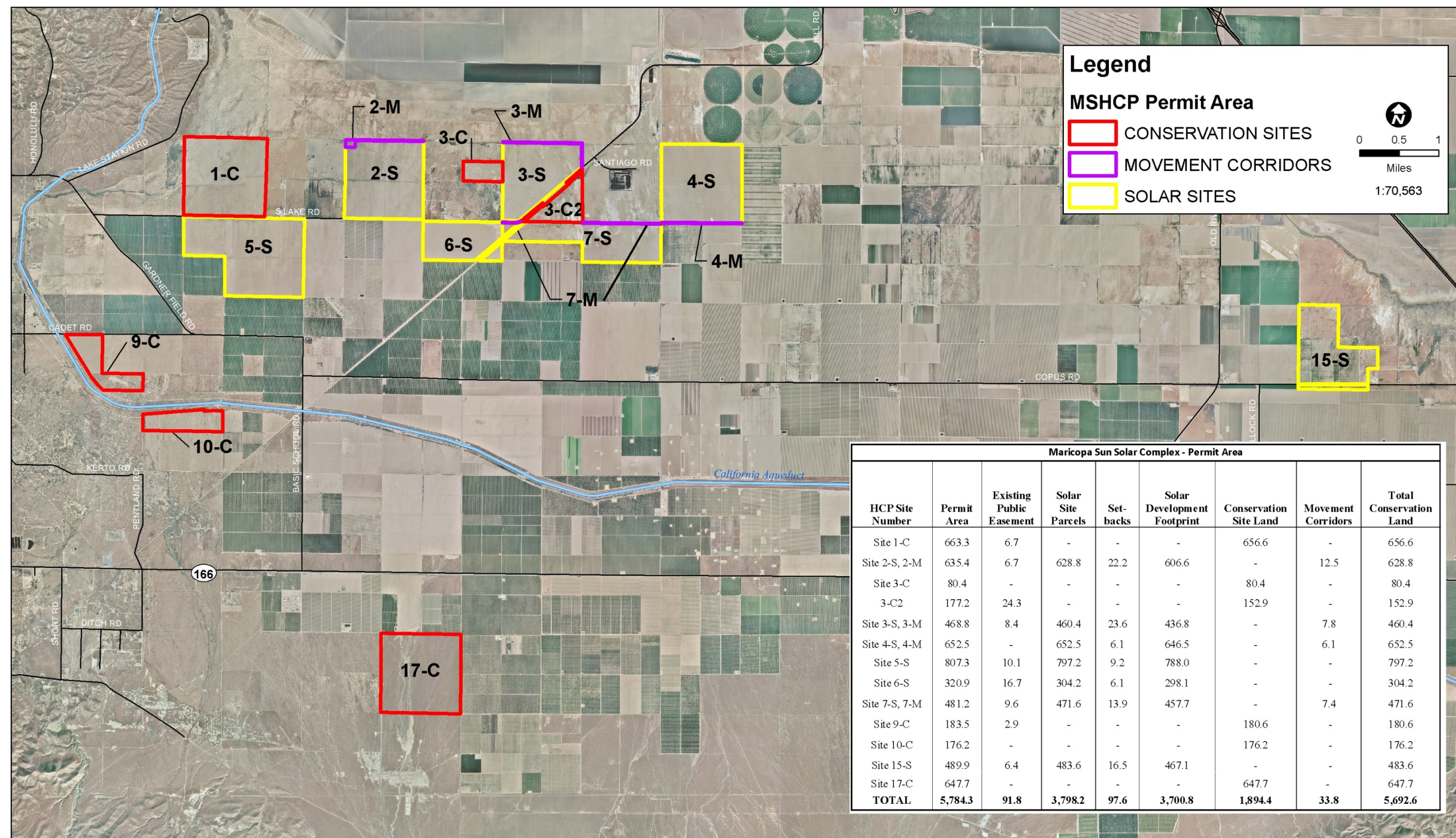
¹ MDBM (Mount Diablo Base and Meridian)

² SBBM (San Bernardino Base and Meridian)

2.0 METHODS

This chapter provides descriptions of the work that was conducted to provide baseline biological information for the study sites. The descriptions of the work performed are separated by major tasks, which either separately or together are used to evaluate the suitability of these areas for conservation purposes.





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SITE PLAN MARICOPA SUN SOLAR COMPLEX, KERN COUNTY, CALIFORNIA

Figure
2

2.1 Database and Literature Review

Queries of the California Natural Diversity Database (CNDDDB 2009, 2010, 2011), California Native Plant Society (CNPS 2009, 2010, 2011) database, and United States Fish and Wildlife Service (USFWS) Threatened and Endangered Species List (2009, 2010, 2011) were reviewed to identify reported historical occurrences of special-status plant and animal species and sensitive habitats for the following United States Geologic Survey (USGS) 7.5-Minute topographic quadrangles, which encompass the Project area and vicinity:

- Buena Vista Lake Bed;
- Ballinger Canyon;
- Conner SW;
- Eagle Rest Peak;
- East Elk Hills;
- Maricopa;
- Millux;
- Mouth of Kern;
- Pentland;
- Santiago Creek;
- Stevens;
- Taft; and
- Tupman.

The historic occurrences of special-status species located within five miles of the project area are provided on site maps to show nearby known locality records. The CNDDDB provides element-specific spatial information on individual documented occurrences of special status species and sensitive natural vegetation communities. The CNPS database provides similar information, but at a much lower spatial resolution, for additional sensitive plant species tracked by the CNPS. The USFWS query generates a list of federally-protected species known to potentially occur within individual USGS quadrangles. Wildlife species designated as “Fully Protected” by California Fish and Wildlife Code Sections 5050 (Fully Protected reptiles and amphibians), 3511 (Fully Protected birds), and 4700 (Fully Protected mammals) were also included on the target species list.

2.2 Focused Biological Surveys

A number of focused biological surveys for special status species were conducted, including surveys for the San Joaquin kit fox, small mammal trapping studies, protocol-level surveys for blunt-nosed leopard lizard, raptor surveys, and vegetation surveys. The focus was to determine the presence and habitat suitability of the study sites for the five species covered in the MSHCP: San Joaquin kit fox, Tipton kangaroo rat, Nelson’s antelope squirrel, western burrowing owl, and blunt-nosed leopard lizard. Information on other special status species were obtained and reported.

2.2.1 SAN JOAQUIN KIT FOX SURVEYS

Standardized surveys for determining San Joaquin kit fox presence were used, which consist of conducting transect surveys focusing on visual searches for dens and other sign of foxes (e.g., scat, prey remains, tracks), night spotlighting surveys, baited track station surveys, and baited camera station surveys. These focused surveys were conducted on and within the immediate vicinity of the study sites. The methods used for each survey type are described below.

Transect Surveys

Quad Knopf's biologists conducted pedestrian transects to detect known, natal, and potential San Joaquin kit fox dens and other sign of kit foxes (e.g., tracks, scat, prey remains) within the study sites and vicinity (Table 2).

Table 2
San Joaquin Kit Fox Transect Survey Dates and Locations

Study Site	Survey Dates (Month/Day/Year)	Surveyors
1-C	02/11, 02/12/2010	B. Perez, J. Firkins, T. Ped, B. Berry, and J. Thompson
3-C	02/17, 02/22, 03/03/2010	B. Perez, J. Firkins, T. Ped, B. Berry, and J. Thompson
3C-2	02/17, 02/22, 03/03/2010	B. Perez, J. Firkins, T. Ped, B. Berry, and J. Thompson
9-C	09/19, 09/20/2011	M. Pernicano, J. Firkins, L. Winfrey, R. Puryear, and M. Smith
10-C	09/22, 09/23/2011	M. Pernicano, R. Puryear, M. Smith, L. Schneider, and E. Noel
17-C	8/22/2009	C. Uptain, W. Moise

The spacing of transects was established to ensure that, as near as possible, 100 percent visual coverage of the survey areas was achieved. The walking transects were spaced from 30 to 200 feet apart depending upon conditions and visibility. The transect widths in the areas that were managed by recurring disking, which eliminated vegetation and allowed for excellent visibility, were approximately 100 to 200 feet apart. These transect widths were used on most of Site 1-C (excluding the levee area), Site 3-C, 10-C, and on the disked portions of 9-C (the northern portions). Site 3-C2, which was not disked during the time of the survey but which contained mostly vegetation of low height, was walked using transects spaced approximately 100 feet apart. The width of transects in native habitat on Site 9-C and in native habitat adjacent to Sites 9-C and 10-C varied from 30 to 50 feet apart depending on the height of vegetative cover and other visual obstructions.

All transect surveys were conducted prior to conducting spotlighting surveys and monitoring camera and track stations, as required in *U.S. Fish and Wildlife Service San Joaquin Kit Fox Survey Protocol* (USFWS 1999). A notable exception to this methodology was on Site 17-C. On that site, only four transects were walked; two along the western half of the site and two along

the eastern half of the site. These transects were walked in a north-south orientation and the distance between transects was approximately 200 feet, but the distance between the two groups of transects was approximately 0.5 miles.

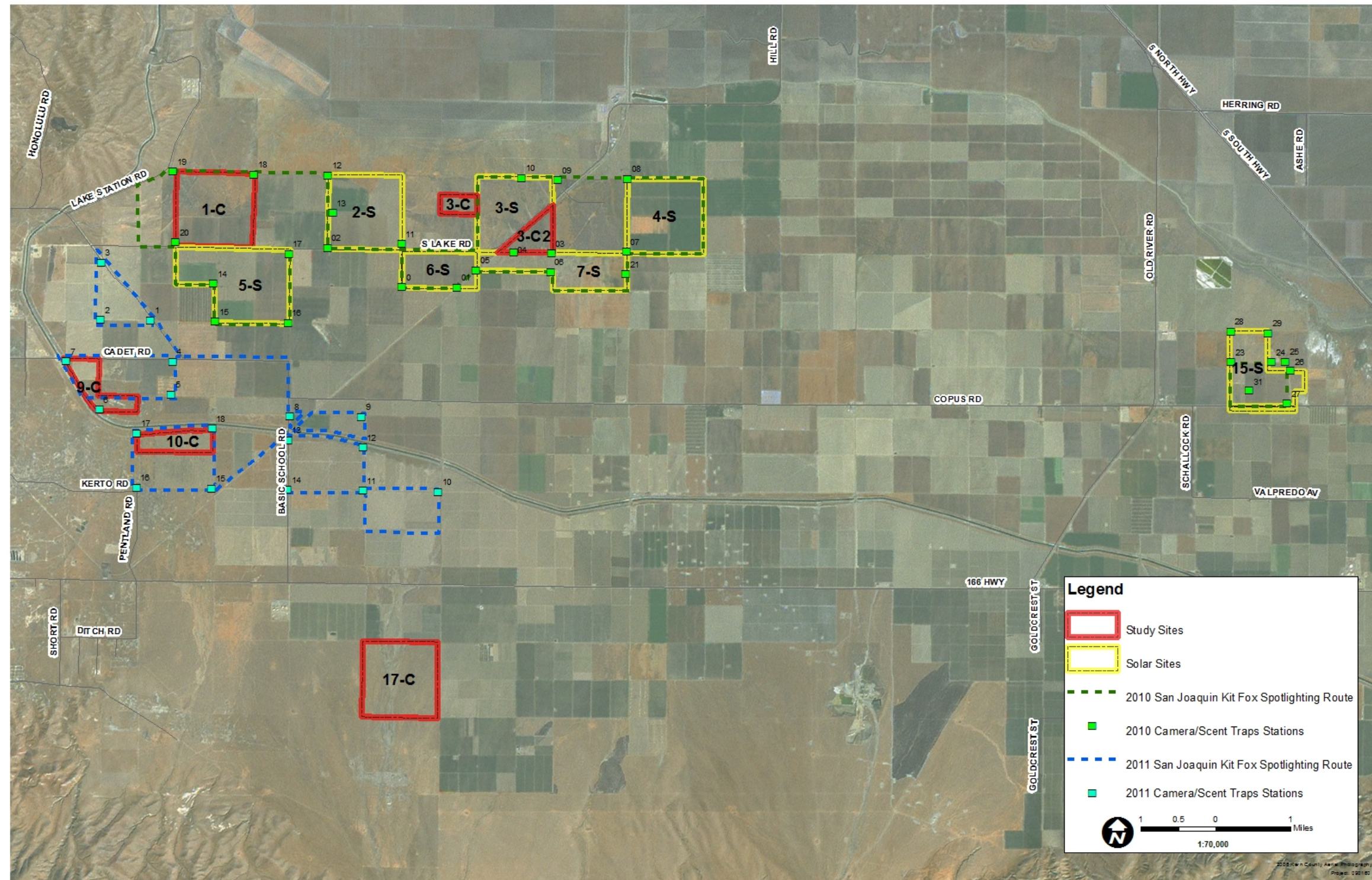
Night Spotlighting Survey

Quad Knopf biologists performed spotlighting surveys for San Joaquin kit fox (Table 3). Two standardized routes, using existing roads within and on the boundary of the Project area were established (Figure 3). One route, approximately 29.04 miles long, was surveyed in 2010. This route covered the project area located north of Cadet and Copus roads, and included areas near Sites 1-C, 3-C, and 3-C2 (Figure 3). A second route, approximately 23.5 miles long, was surveyed in 2011. This route covered the project area located south of Cadet and Copus roads, and included areas near Sites 9-C and 10-C (Figure 3). No spotlighting was conducted near Site 17-C.

Table 3
San Joaquin Kit Fox Night Spotlighting Survey Dates and Locations

Study Sites	Survey Dates (Month/Day/Year)	Surveyors
1-C	03/17, 03/18, 03/22, 03/23, 03/24 03/25/2010	J. Thompson, C. Uptain, W. Moise, B. Perez, J. Firkins, T. Ped, B. Berry, and J. Buchanan
3-C	03/17, 03/18, 03/22, 03/23, 03/24 03/25/2010	J. Thompson, C. Uptain, W. Moise, B. Perez, J. Firkins, T. Ped, B. Berry, and J. Buchanan
3-C2	03/17, 03/18, 03/22, 03/23, 03/24 03/25/2010	J. Thompson, C. Uptain, W. Moise, B. Perez, J. Firkins, T. Ped, B. Berry, and J. Buchanan
9-C	09/27, 09/28, 09/30, 10/03, 10/04, 10/05/2011	M. Pernicano, R. Puryear, L. Schneider, and T. Madison
10-C	09/27, 09/28, 09/30, 10/03, 10/04, 10/05/2011	M. Pernicano, R. Puryear, L. Schneider, and T. Madison
17-C	No surveys conducted	

The route conducted in 2010 was driven for five nights and the route conducted in 2011 was driven for six nights (at least three of which were consecutive). The spotlighting route was established in a manner that allowed for maximum coverage of the highest quality potential San Joaquin kit fox habitats within and adjacent to the study area, while also taking into account route conditions and vehicle access. The established routes were driven at speeds of no greater than 10 miles per hour. Spotlighting began 20 to 30 minutes after sunset and continued until the entire route was driven. Two biologists inspected the terrain from both sides of a vehicle using one million candlepower spotlights. All species that were observed were recorded on data sheets, along with date, start and end times, names of observers, weather conditions, and animal observations. Whenever eye shine or animal movement was detected, the vehicle was stopped and the animal identified using 7.5 x 50 and 10 x 42 binoculars. All animals observed, including potential prey and predator species, were noted on the data sheets.



Camera and Baited Track Stations

Quad Knopf biologists conducted baited track station surveys for San Joaquin kit fox. Each station was baited in the evening and checked on the subsequent morning (Table 4). Thirty-one combination camera/track stations were established for five nights in 2009. These stations covered the project area located north of Cadet and Copus roads, which included areas near Sites 1-C, 3-C, and 3-C2 (Figure 3). Eighteen combination camera/track stations were established for six nights in 2011. These stations covered the project area located south of Cadet and Copus roads, which included areas near Sites 9-C and 10-C (Figure 3). No camera/track stations were established on Site 17-C.

Table 4
Camera and Baited Track Station Dates and Locations

Conservation Area	Survey Dates (Month/Day/Year)	Surveyors
1-C	03/09, 03/10, 03/11, 03/12, 03/13/2009	J. Thompson, J. Firkins, B. Berry
3-C	03/09, 03/10, 03/11, 03/12, 03/13/2009	J. Thompson, J. Firkins
3-C2	03/09, 03/10, 03/11, 03/12, 03/13/2009	J. Thompson, J. Firkins
9-C	09/28, 09/29, 09/30, 10/4, 10/5, 10/6/2011	M. Pernicano, T. Madison, R. Puryear, L. Schneider
10-C	09/28, 09/29, 09/30, 10/4, 10/5, 10/6/2011	M. Pernicano, T. Madison, R. Puryear, L. Schneider
17-C	No surveys conducted	

Each station consisted of a one meter-diameter circle of fire clay, baited in the center with a tin of chicken-flavored cat food, and was equipped with an infrared and motion-detection sensor digital camera. Although the standard field protocol requires that five stations be installed in a diamond-five pattern within each square mile (one station in each corner and one station in the center of the site), the number and placement of stations varied from protocol; many of the sites were being actively disked at the time of the surveys, which precluded establishing track and camera stations at the centers of the sites. Furthermore, because these study sites are not being proposed for development, the placement of the stations was focused on locations along dirt roadways and along habitat corridors to best accomplish sampling of the overall Project vicinity.

Dates of operation of the cameras were simultaneous with the dates of operation of the track stations. The cameras and baited track stations were set up each afternoon and checked each following morning. All species tracks that were observed were identified to at least the ordinal level and canid tracks were identified to species where possible. The resulting data were recorded on data sheets, including date, start and end times, names of observers, weather conditions, and track observations. Camera images were downloaded and identified on a daily basis. Data recorded included date, start and end times, names of observers, weather conditions, and wildlife species captured in the photographs. In all, 263 camera station nights were compiled (5 nights each for 31 stations and 6 nights each for 18 stations) throughout the project area.

2.2.2 SMALL MAMMAL TRAPPING STUDIES

Small mammal trapping studies for special status small mammal species, including the Tipton kangaroo rat, giant kangaroo rat (*Dipodomys ingens*), San Joaquin pocket mouse (*Perognathus inornatus inornatus*), and Tulare grasshopper mouse (*Onychomys torridus tularensis*) were conducted within the suitable habitat present on or along adjacent lands at Sites 1-C, 3-C, 3-C2, 9-C, and 10C (Table 5, Figures 4A and 4B). No trapping was conducted on Site 17-C.

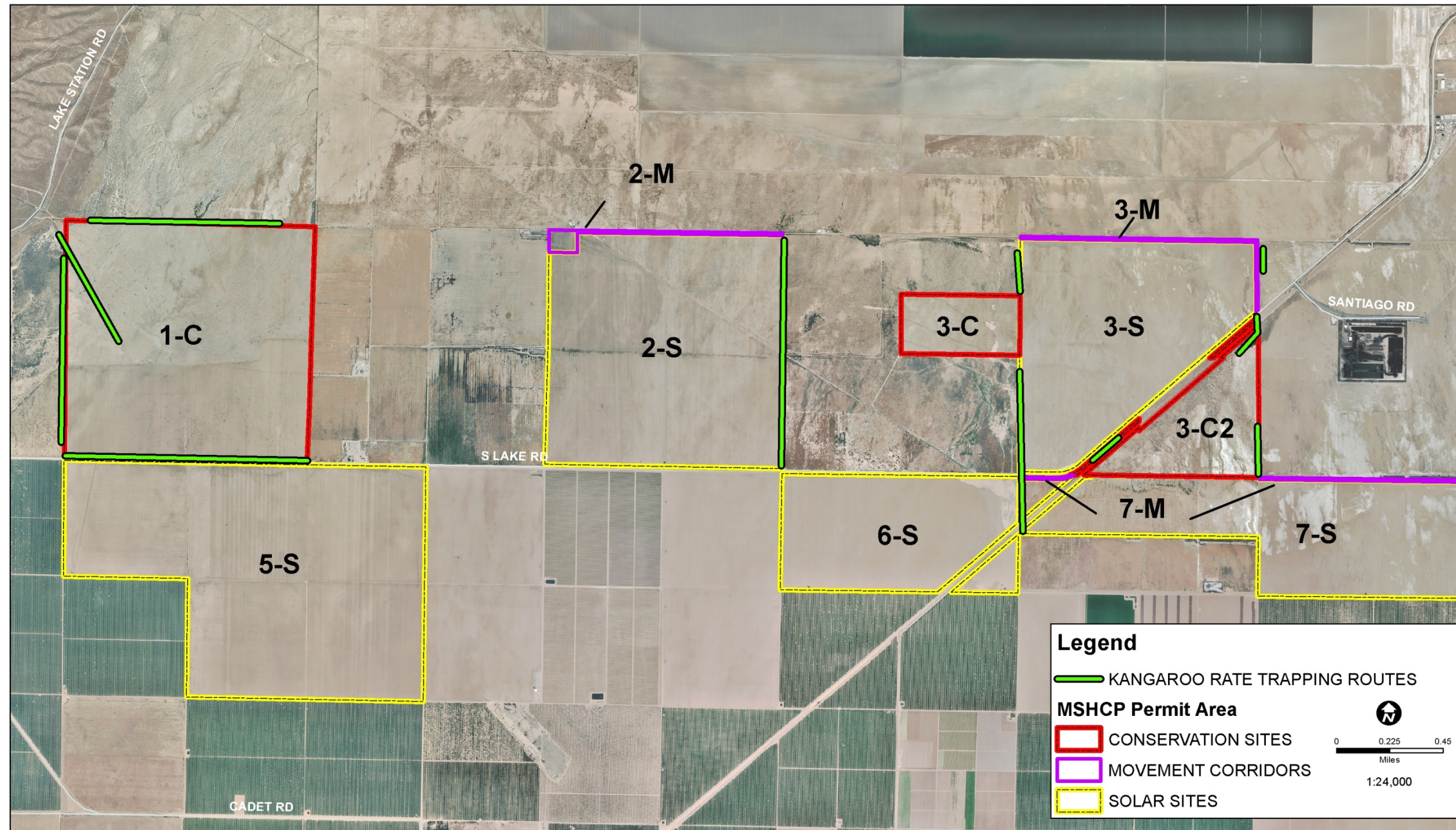
Table 5
Small Mammal Trapping Study Dates and Locations

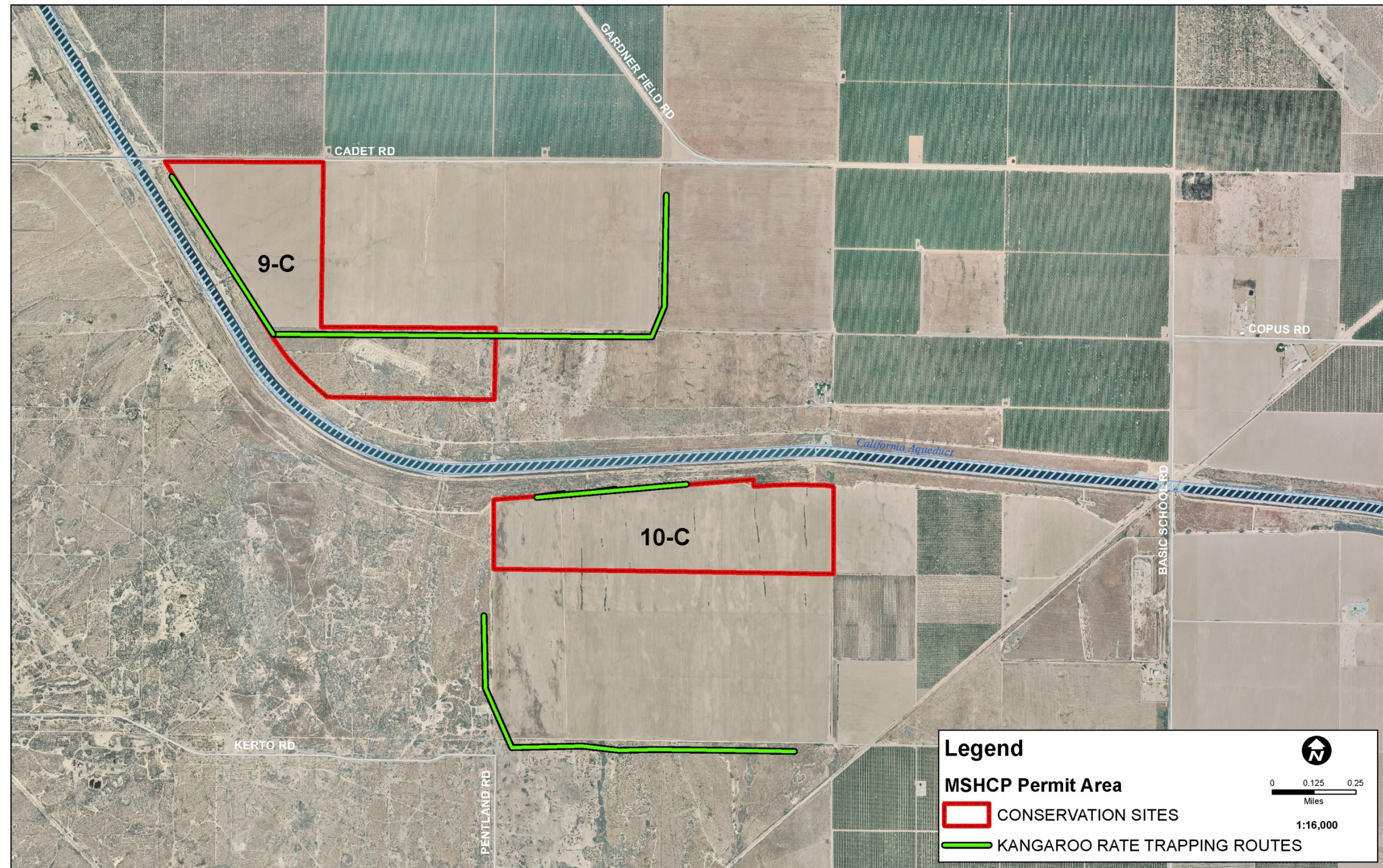
Conservation Sites	Survey Dates (Month/Day/Year)	Surveyors
1-C	03/08, 03/22, 03/23, 03/24, 03/25/2010	C. Uptain, W. Moise, B. Perez, and J. Firkins
3-C	03/22, 03/23, 03/24, 03/25, 03/26/2010	C. Uptain, W. Moise, B. Perez, and J. Firkins
3-C2	03/11, 03/12, 03/25/2012	W. Moise and J. Firkins
9-C	09/18/2011	C. Uptain, M. Pernicano, B. Perez, and J. Firkins
10-C	01/09, 01/10, 01/11, 01/12/2012	C. Uptain and M. Pernicano
17-C	No trapping surveys conducted.	

All trapping for threatened, endangered, and special status species was conducted under the authorization provided by federal recovery permit TE-119861-1 issued by the USFWS and Scientific Collecting Permit SC-2797, as amended with special provisions, issued by the California Department of Fish and Wildlife (CDFW). Trapping was conducted within each area for four consecutive nights or until the target species was captured, whichever occurred first.

Traps were set along the levee present in the northwestern corner of Site 1-C and within non-disked habitats adjacent to the south, west, and north of this site. Traps were also set within native habitat adjacent to the north, south, and west of Site 3-C, and within Site 3-C2 and habitat adjacent to the north and south of this site. Traps were set within the 83.25-acre native habitat on Site 9-C (parcel APN220-201-02) and native habitat that occurs adjacent to the west and east of this site. Traps were also placed in native habitat located to the north, west and south of Site 10-C (Figures 4A and 4B).

Traps were spaced at approximately 30-foot intervals within each trap line and placed near active small mammal sign (i.e., burrows, dust baths, runways). Generally, trap lines consisted of 10 traps, but up to 12 or 14 traps were placed in areas that contained a relatively high amount of burrows or other small mammal sign (e.g., dust baths, runways, footprints, and tail drag marks). Each trap was flagged and numbered to assure that all traps would be relocated and checked. Standard-length (3 inch x 3.5 inch x 9 inch) or extended-length XLK (3 inch x 3.75 inch x 12 inch) Sherman™ live traps were used. All standard-length traps were modified to reduce the risk of tail injury. Each trap was baited with a mixture of rolled oats, millet, and peanut butter. A wad of paper towel was placed within traps as necessary to reduce trap-chewing behavior, which can result in injuries to mouthparts. Traps were baited and opened prior to dusk and checked once a





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LOCATIONS OF SMALL MAMMAL TRAPPING LINES ON THE STUDY SITES 9-C AND 10-C
OF THE MARICOPA SUN SOLAR COMPLEX PROJECT, KERN COUNTY, CALIFORNIA

Figure
4B

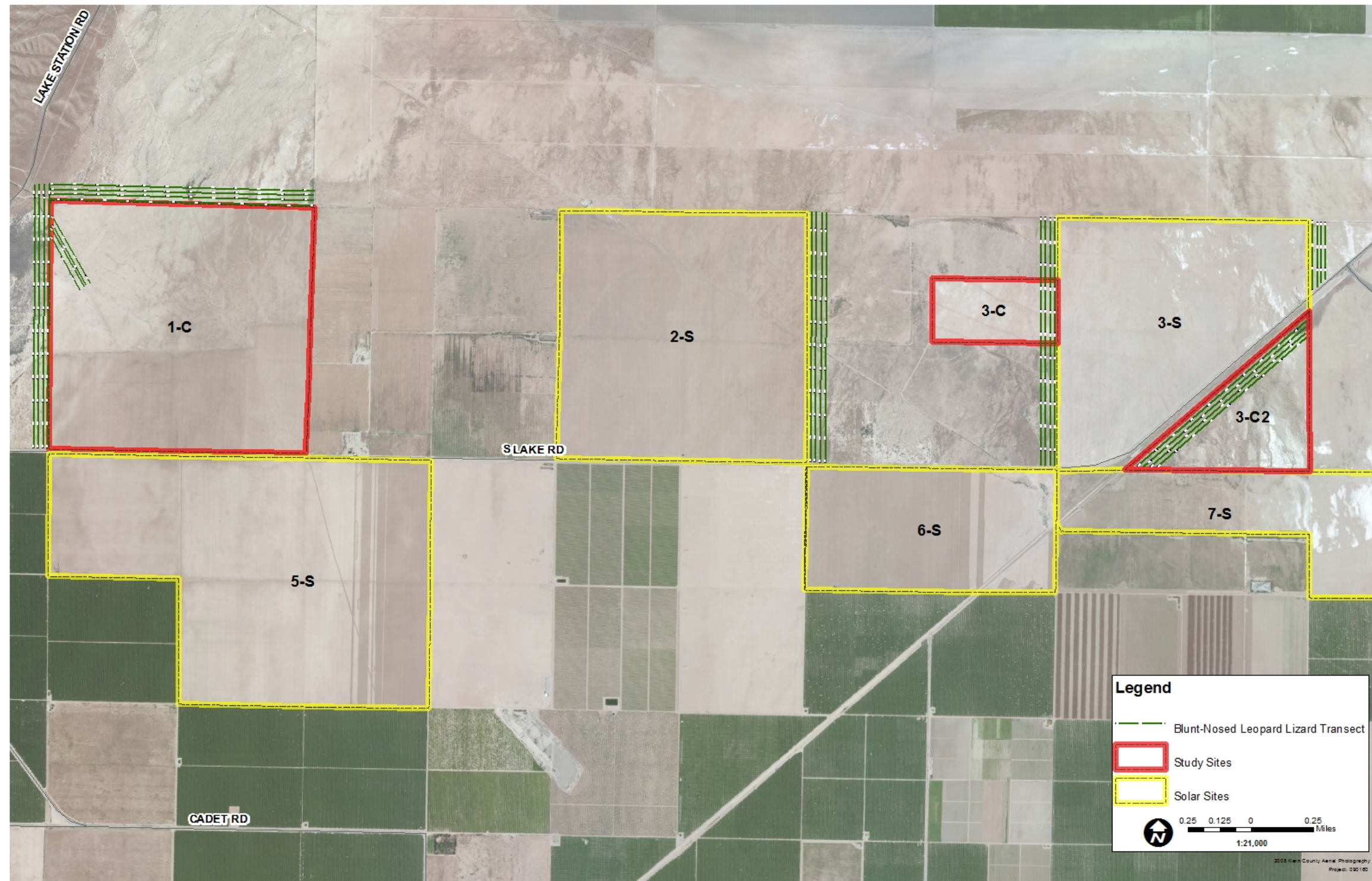
night, approximately between 2300 and 0400 hour, until all the traps were checked and closed. Checking of each trap took approximately 2 to 3.5 hours to complete. Captured animals were identified to species, weighed; and their sex, age, and reproductive condition determined before being released at the point of capture. A tuft of hair on the rear flank of each captured animal was trimmed to identify previously captured animals from newly captured animals. Data were recorded on data sheets for all protocol-level surveys, including date, time, names of observers; weather conditions with air temperature, wind, humidity, cloud cover, and moon phase information; and captured animal specifics.

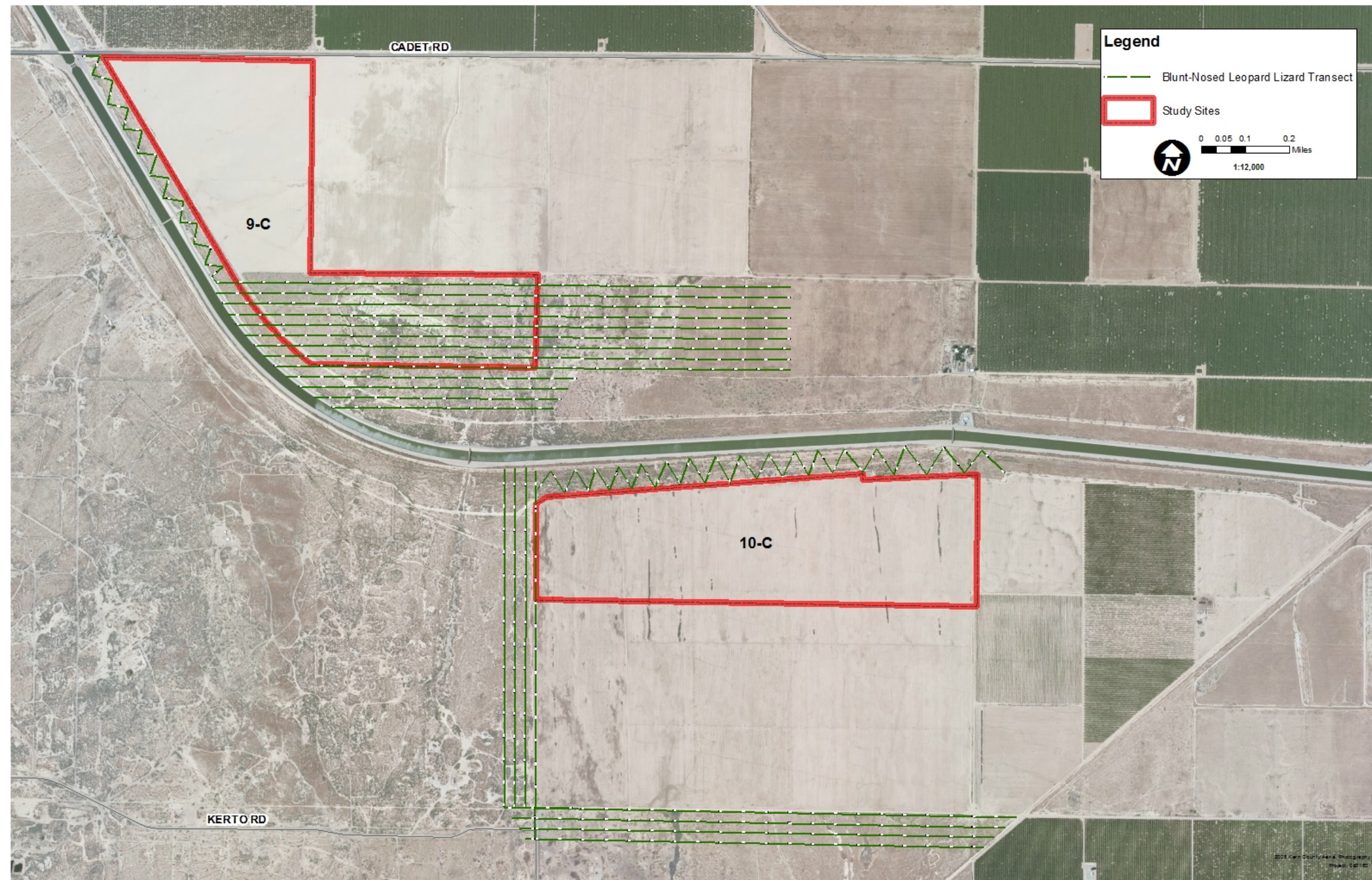
2.2.3 BLUNT-NOSED LEOPARD LIZARD SURVEYS

Intensive surveys for blunt-nosed leopard lizard were completed throughout suitable habitat occurring along the levee running from the northwest corner to the middle of Site 1-C and within native habitats adjacent to the north and west of this site. Surveys were conducted along the east perimeter of Site 3-C and within the adjacent native habitat west of the site. Surveys were conducted along the northwest perimeter of Site 3-C2 and within the native habitat occurring within 500 feet west, south, and east of Site 9-C, including parcel APN 220-201-02. Surveys were conducted within native habitat occurring within 500 feet north and west of Site 10-C, and within native habitat occurring approximately 0.45 miles south of Site 10-C (Figures 5A and 5B). All other areas on and near the study sites were either disked on a recurring basis or are actively farmed and do not contain habitat that is suitable to support blunt-nosed leopard lizards. No focused blunt-nosed leopard lizard surveys were conducted on Site 17-C, although that site does contain habitat that could potentially support this species. The survey dates, locations, and personnel are represented in Table 6.

Table 6
Blunt-nosed Leopard Lizard Survey Dates and Locations

Conservation Sites	Survey Dates (Month/Day/Year)	Surveyors
1-C	06/10, 06/12, 06/15, 06/24, 06/25, 06/30, 07/01, 07/08, 07/9, 07/13, 07/14, 08/24, 08/25, 08/26, 08/28/2009	W. Moise, B. Perez, J. Firkins, B. Jones, P. Morrison, K. Achee, V. McCauley, N. Hernandez, J. Buchanan, and T. Ped
3-C	06/ 10, 06/12, 06/15, 06/24, 06/25, 06/30, 07/01, 07/08, 07/9, 07/13, 07/14, 08/24, 08/25, 08/26, 08/28/2009	W. Moise, B. Perez, J. Firkins, B. Jones, P. Morrison, K. Achee, V. McCauley, N. Hernandez, J. Buchanan, and T. Ped
3-C2	06/25, 06/28, 06/29, 06/30, 07/01, 07/02, 07/06, 07/07, 07/08, 07/12, 07/13, 07/14, 09/07, 09/08, 09/10, 09/14, 09/15/2010	M. Pernicano, B. Perez, G. White, and Ch. Williams
9-C	06/10, 06/13, 06/14, 06/15, 06/16, 06/28, 06/29, 06/30, 07/01, 07/11, 07/12, 07/13, 08/08, 08/09, 08/10, 08/11, 08/22/2011	M. Pernicano, A. Glass, B. Perez, G. White, J. Joyner, R. Garro, V. Prise, S. Marin, and R. Puryear
10-C	06/09, 06/10, 06/13, 06/14, 06/15, 06/16, 06/28, 06/29, 06/30, 07/01, 07/12, 07/13, 08/08, 08/09, 08/10, 08/11, 08/22/2011	M. Pernicano, A. Glass, B. Perez, G. White, J. Joyner, R. Garro, V. Prise, S. Marin, and R. Puryear
17-C	No focused surveys were conducted	





In general, four transects spaced approximately 125 feet apart were conducted throughout the survey areas, except for within the native habitat occurring along the California Aqueduct right-of-way west of Site 9-C, north of Site 10-C and at Site 17-C. The California Aqueduct right-of-way was surveyed by walking meandering transects throughout the habitat. Only four transects were walked on a single day on Site 17-C. The disked portions of the study sites were walked a single time because these areas are not suitable to support blunt-nosed leopard lizards. Standard methodologies as specified in *Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (CDFG 2004) were followed. Surveys were conducted between early morning and 1400 hours provided that a shaded thermometer held 1 to 2 cm above the soil, in the habitat, read between 25 and 35° C (77 to 95° F), cloud cover was less than 90 percent, and sustained wind speed was below 10 mph. Surveys were conducted a total of seventeen times within each area surveyed (except on Site 17-C, and on the disked portions of Sites 1-C, 3-C, 9-C, and 10-C); twelve times during the adult survey periods (April 15 to July 15) and five times during the hatchling period (August 1 to September 15). Data were recorded on data sheets that included the date, names of observers, weather conditions, air and soil temperature, wind speed, all lizard species encountered, and signs or direct observations of other wildlife species.

2.2.4 RAPTOR SURVEYS

Raptor nest surveys, consisting of identifying any stands of trees and manmade structures (such as transmission towers) that would provide suitable nesting habitat for raptors, and recording any raptors or potential raptor nests, were conducted for all study sites with the exception of Site 17-C.

Quad Knopf biologist, Tim Madison, conducted a windshield survey for raptor nests on January 18, 2012, for Site 9-C and 10-C, and was joined by Quad Knopf biologist, Jeff Firkins on February 10 and February 14, 2012 for windshield surveys on Sites 1-C, 3-C, and 3-C2. The established route used for San Joaquin kit fox spotlighting surveys was used while conducting the raptor surveys; however, the route was modified as needed to ensure that 100 percent coverage of all areas within 0.5 miles of the study sites was inspected.

The proposed study sites and all areas within 0.5 mile of them were surveyed. All potential nest locations were inspected with binoculars or a spotting scope to ensure accurate nest identification. Any confirmed raptor or potential raptor nest, and all observed raptors were recorded.

2.2.5 VEGETATION SURVEYS

Information on vegetation, sensitive vegetation communities, special status plant species, and a plant species inventory of the study sites and surrounding habitat was collected.

Focused vegetation surveys, consisting of meandering pedestrian transects, were conducted on each study site to determine the presence of sensitive natural communities. Quad Knopf biologists, Curtis Uptain and Woody Moise, conducted surveys on June 9-11, 2009, within Sites 1-C, 3-C, and 3-C2. Quad Knopf biologists, Martina Pernicano and Tim Madison, conducted surveys on November 29 and 30, 2011, within Sites 9-C and 10-C and adjacent habitat as

needed, and Curtis Uptain and Woody Moise conducted a survey on August 28, 2009 within Site 17-C. Plant species inventories were collected during the site visits.

Additional information on plant species occurring within Sites 1-C, 3-C, 3-C2, 9-C, and 10-C was collected by Quad Knopf biologists during other focused biological surveys. Plants were identified using *The Jepson Manual: Higher Plants of California* (Hickman 1993), *A Key to Vascular Plant Species of Kern County California* (Moe 1967), and *Weeds of California and Other Western States* (DiTomaso et al. 2007). Vegetation types were classified following Holland (1986).

2.3 Wetland Delineation Survey

Prior to conducting field investigations, a review of the National Wetlands Inventory (USFWS NWI 2012) was completed to assess whether wetlands had been previously documented on or adjacent to survey areas. The NWI, which is operated by the USFWS, is a collection of wetland and riparian maps that depict graphic representations of the type, size, and location of wetland, deepwater, and riparian habitats in the United States. The NWI maps were prepared through the analysis of high altitude imagery, collateral data sources, and field work. However, given that only 1 percent of the NWI, on average, is updated each year, its interpretation should be accompanied by site-specific surveys. In addition to the NWI, USGS 7.5-minute topographic quadrangles were referenced to evaluate the potential occurrence of blue-line drainages within the project area.

Quad Knopf biologists, Curtis Uptain, Woody Moise, Andy Glass, and Tim Madison, conducted wetland field investigations to locate and delineate all potential wetlands and waters of the U.S. on and adjacent to the study sites (Table 7). The survey encompassed Sites 1-C, 3-C2, 9-C, and 10-C, including areas within 100 feet of their perimeters. Site 3-C and 17-C were not surveyed to this level of effort; however, on the basis of previous observations, it was apparent that Site 3-C is disked and lacked any presence of wetlands indicators. The delineation was completed in accordance with the methods presented in the *1987 Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the most recent version of the *Arid West Supplement* (Wetlands Regulatory Assistance Program 2008).

Table 7
Wetland Delineation Dates and Locations

Study Site	Survey Dates (Month/Day/Year)	Surveyors
1-C	10/27/2009	C. Uptain and W. Moise
3-C	No wetland delineation conducted	
3-C2	10/28, 11/18/2009	C. Uptain and W. Moise
9-C	01/10, 01/11/2012	A. Glass, T. Madison
10-C	01/10, 01/11/2012	A. Glass, T. Madison
17-C	No wetland delineation conducted	

The field surveys of Sites 1-C and 3-C2 were conducted using pedestrian transects spaced 100 feet apart or less to ensure 100 percent coverage of the study sites. Given their smaller size, Sites 9-C and 10-C were surveyed with 100 percent coverage by primarily focusing on the perimeters of the study sites and their adjoining habitats.

Existing conditions were evaluated and documented, the historic locations of on-site wetlands identified from the NWI and USGS maps were visited to determine existing conditions, and wetland boundaries and boundaries of Ordinary High Water for those features that may be under the jurisdictional authority of the United States Army Corps of Engineers (ACOE) and the Environmental Protection Agency (EPA) were delineated (except on disked Sites 3-C and 17-C). Sample points were established and the presence or absence of hydrological indicators was noted, soils were characterized, and vegetation was analyzed following the *Corps of Engineers Wetland Delineation Manual* (USACE 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008).

All water features that were encountered on and adjacent to the study sites during the surveys were mapped and evaluated. A Trimble GeoXH Global Positioning System (GPS) unit with Wide Area Augmentation System (WAAS) and real-time sub-meter accuracy was used to map the boundary of each feature. The widths and depths of linear features were subsequently measured. Each feature was evaluated at representative sample locations for the presence of hydrology, hydric soils, and hydrophytic vegetation using standard procedures. Hydrologic indicators, including the presence of standing water, fresh alluvial deposits, root zone oxidation, drainage patterns, and other diagnostic characteristics, were documented. Soil samples were excavated and soils were inspected to characterize soil profiles and soil/water conditions at each data plot, and to compare site observations with soil conditions described in the *Web Soil Survey* (USDA 2009). Soil horizonation, texture, moisture content, depth to saturation, and/or standing water were noted for each soil pit. The presence or absence of particulate organic matter, organic matter staining, redoximorphic features, and gleying were noted. Soil colors were determined (*sensu* GretagMacbeth 2000). The percent cover of observed plant species was visually estimated and recorded. Dominant plant species were identified in accordance with the USACE 50/20 Rule. Plant identification was determined using the *Jepson Manual of Higher Plants* (Hickman 1993). The wetland indicator status of plant species was determined using the *National List of Plant Species that Occur in Wetlands: Northwest (Region 8)* (Reed 1988). The hydrological, soil, and vegetative data recorded at the sample points were transcribed onto standard ACOE Wetland Determination Data Forms. The results of the wetland delineations conducted on sites 1-C, 3-C, and 3-C2 (as well as sites 2-S, 3-S, 4-S, 5-S, 6-S, 7-S and 15-S) have been verified by the ACOE.

3.0 RESULTS

This section identifies the regional biological setting, general site conditions, and site-specific biological conditions. The findings of all focused biological surveys, including San Joaquin kit fox surveys, small mammal surveys, protocol-level surveys for blunt-nosed leopard lizard, raptor surveys, vegetation surveys, and wetland delineation survey are presented in this section. These findings are used to support the evaluations of potential sensitive species occurrences and the determinations of suitability of the study sites as conservation lands.

3.1 Regional Settings

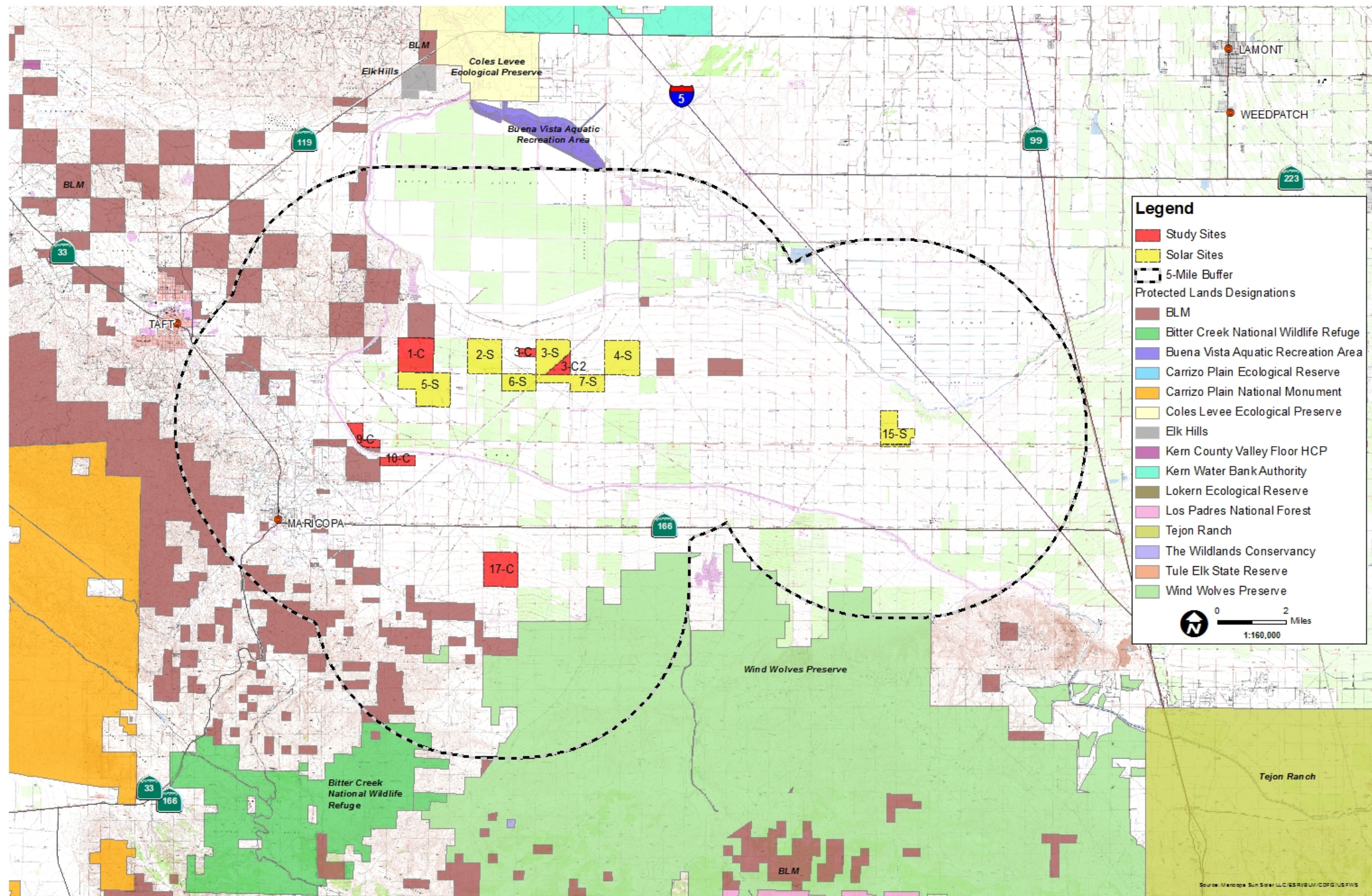
Regional biological settings of the Project represented in this section consist of information on land use, climate, hydrological conditions, and historical occurrence of special status species known from the region.

3.1.1 LAND USE

Historically, the vicinity of the study sites was vegetated with San Joaquin Saltbush (*Atriplex joaquiniana*) (Kuchler 1977), although Tule Marsh (*Schoenoplectus acutus*) likely occurred along the margins of Buena Vista Lake, which is located to the north, and within the overall landscape in scattered semi-permanent and permanent wet areas. It is likely that Valley Sink Scrub habitat occurred in the lower lying areas and was interspersed with Saltbush Scrub and Tule Marsh. The native vegetation associations remaining in the Project vicinity are comprised of a mosaic of Saltbush Scrub, including valley saltbush (*Atriplex polycarpa*) and spinescale saltbush (*Atriplex spinifera*), annual Non-native Grassland, and Valley Sink Scrub, which is dominated by seepweed (*Sueada moquinnii*) and/or iodine bush (*Allenrolfea occidentalis*). Stands of tamarisk (*Tamarix pentandra*) are evident in some surrounding lands, especially along canal embankments and in pond basins. Remnants of Tule Marsh occur in Buena Vista Lake, and in scattered pond basins and other artificial ponds.

Much of the native habitat in the project region has been converted to agricultural production, oil field development, urban development, and associated infrastructure (e.g., highways, water conveyance facilities, transmission lines), but remnant stands of native habitat exist at scattered localities. Some of these native lands have subsurface oil reserves, and oil extraction activities have caused varying levels of disturbance. Most of the existing areas that still contain native habitats have been disturbed at one time or another by dry-land farming, extensive sheep and/or cattle grazing, oil extraction activities, or other activities. Many of these parcels are owned and managed by the Bureau of Land Management (BLM). There is extensive public and protected land to the south and west of the Project, but land to the north and east is mostly privately owned and not protected. Several Ecological Preserves/Reserves and other protected lands are located in the region (Figure 6). Some of these include:

- The Lokern and Elk Hills Ecological Reserves, which are administered by the CDFW;
- The Tule Elk State Natural Reserve located near Tupman, which is administered by the California Department of Parks and Recreation;
- The Buena Vista Aquatic Recreation Area, which is administered by the County of Kern;
- The Wind Wolves Preserve, which is administered by The Wildlands Conservancy;
- The Bitter Creek National Wildlife refuge, which is administered by the USFWS; and



- The Carrizo Plains National Monument and the Carrizo Plains Ecological Reserve, which are administered by the Department of the Interior (DOI) and CDFW.

Study sites 1-C, 3-C, the most northern portion of Site 9-C (APN 220-050-42), and Site 10-C are zoned for agricultural uses. These areas are currently under Williamson Act contracts and are periodically disked for weed control. The 2.44-acre levee in the northwest corner of Site 1-C is excluded from disked because of its steep topography. That levee is vegetated with saltbush scrub. Site 3-C2 has been disked in the past and furrows are evident, but the site is in the process of becoming vegetated. The most southern portion of Site 9-C (APN 220-201-02) has not been disked and is vegetated with saltbush scrub and quailbush. There is some interior disturbance on this site caused by the installation of a pipeline and heavy equipment use. Site 17-C has not been disked and is vegetated with saltbush scrub and alkali goldenbush (*Isocoma acedenia*).

Adequate water for financially viable farm production is not available on the Project site, and there are no irrigation systems present, aside from a few scattered wells and farm ponds on some of the parcels.

3.1.2 CLIMATE

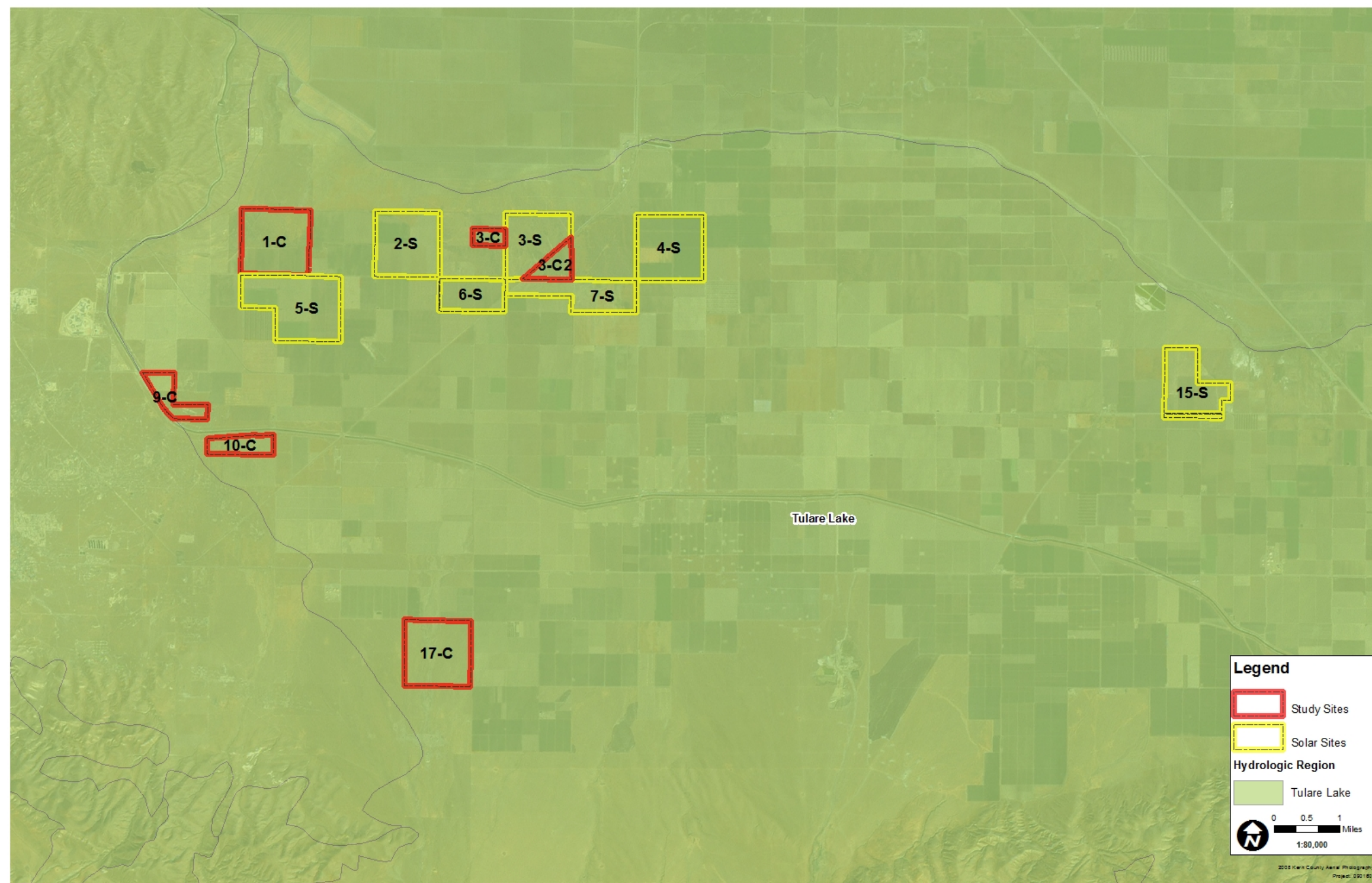
The project area has a moderate climate with generally mild temperatures throughout the year. It is hot and dry in the summer and cold and moist in the winter. The average temperature in the winter is 48.5 degrees Fahrenheit (F) and the average daily minimum winter temperature is 38.3 degrees. Winter rains are interspersed with spells of cloudy, foggy, or sunny weather. The average summer temperature is 80.7 degrees and the average daily maximum summer temperature is 94.8 degrees. The annual average precipitation is 6.32 inches, with all of the precipitation falling as rain. In the summer, the sun shines 93 percent of the time and 73 percent of the time in the winter. The prevailing wind is from the west-northwest. Average wind speed is highest in April and May, at 7.7 miles per hour. Snowfall has not been recorded at Maricopa and measurable snow is a rare occurrence in Bakersfield (United States Department of Agriculture 2009). The growing season is over 350 days per year. Table 8 provides the monthly maximum, minimum and mean temperature and precipitation recorded for the Maricopa area.

Table 8
Monthly Maximum, Minimum, and Mean Temperature and Precipitation
(Maricopa climate station: <http://www.idcide.com/weather/ca/taft.htm>)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Max °F	56.9	63.8	68.6	75.9	83.9	92.2	96.9	95.8	90.0	80.5	66.1	57.2	77.3
Min °F	38.6	42.9	45.7	49.4	56.6	63.9	69.8	68.7	64.7	56.6	45.3	38.0	53.4
Mean °F	47.8	53.4	57.2	62.7	70.3	78.1	83.4	82.3	77.4	68.6	55.7	47.6	65.4
Inches of precipitation	1.16	1.13	1.40	0.51	0.21	0.04	0.00	0.07	0.26	0.20	0.63	0.71	6.32

3.1.3 HYDROLOGY

The Project is located within a semi-arid region, which relies on rainfall, groundwater, and the Kern River for its water supply. Most rainfall occurs in the winter and spring, as is typical for



areas with this climate. The project area is in the Tulare Lake hydrologic region (Figure 7). Significant rivers within this region include Kings, Kaweah, Tule, and Kern Rivers. These rivers have their origins on the western slope of the Sierra Nevada, draining into the San Joaquin Valley floor. This basin is hydrologically closed, having no outlet to the Pacific Ocean. The Tulare Lake hydrological region includes the Kaweah River hydrologic unit and the South Valley Floor hydrological unit. The project area is located in the South Valley Floor unit (Figure 8). There are seven hydrological areas within the Tulare Lake hydrologic region. All study sites are located within Arvin-Wheeler Ridge area (Figure 9).

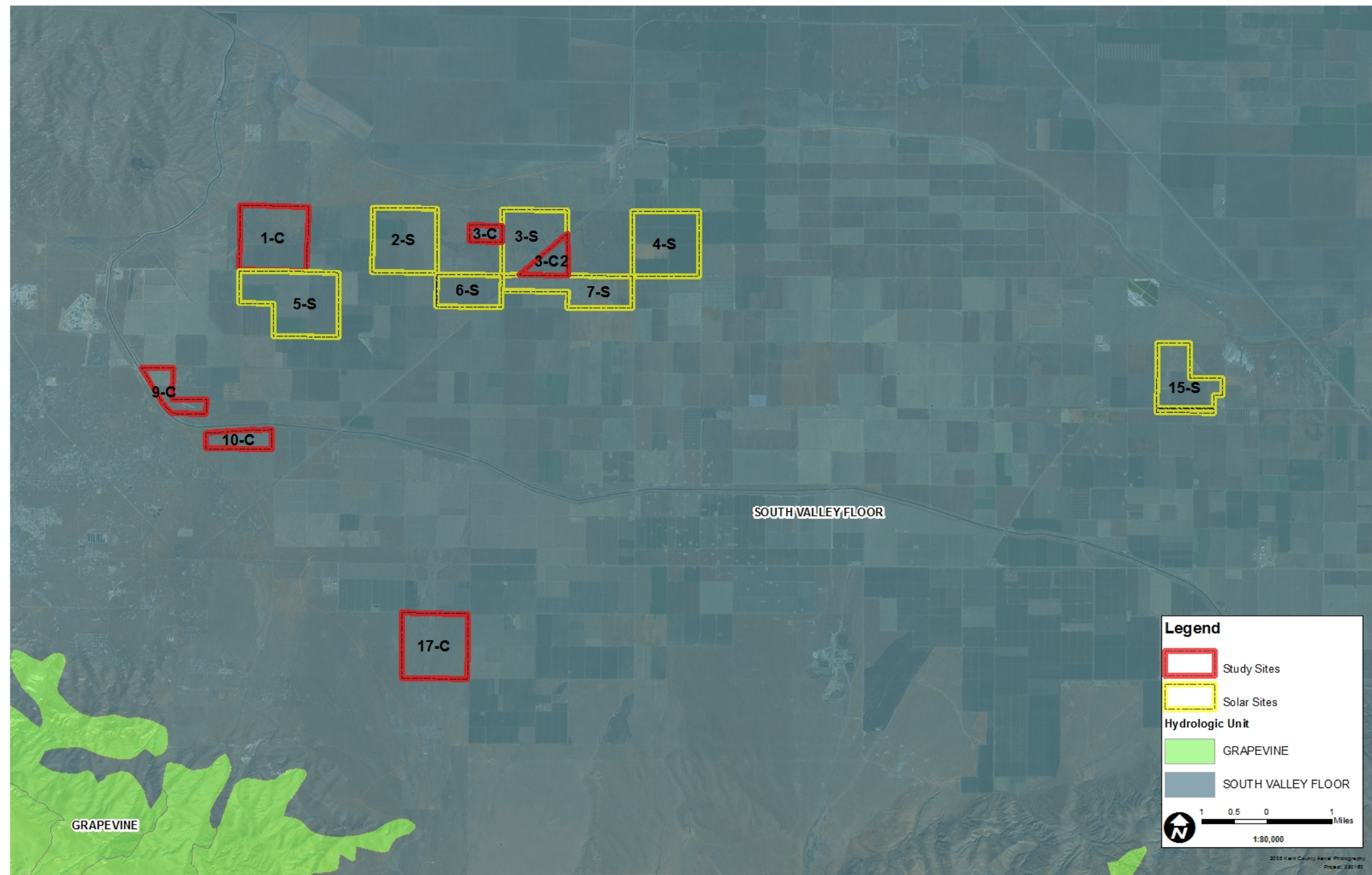
The only significant water course in the immediate area of the Project is the Kern River. The Kern River begins on the western slope of Mount Whitney in the southern Sierra Nevada range and flows in a southwest direction. Several minor streams flow into the Kern River, which exists as a contained basin except during high runoff years. The Kern River is fully diverted and its waters fully used (Kern County Planning and Community Development 2010); however, during very wet years, the Kern River reaches the flood channel located on the west of the valley floor and carries water into the Buena Vista Lake Basin, which is subject to flooding and ponding (United States Department of Agriculture, 2009). Kern River flows have been regulated since the completion of Isabella Dam in 1953 (Kern County Planning and Community Development Department, 2010).

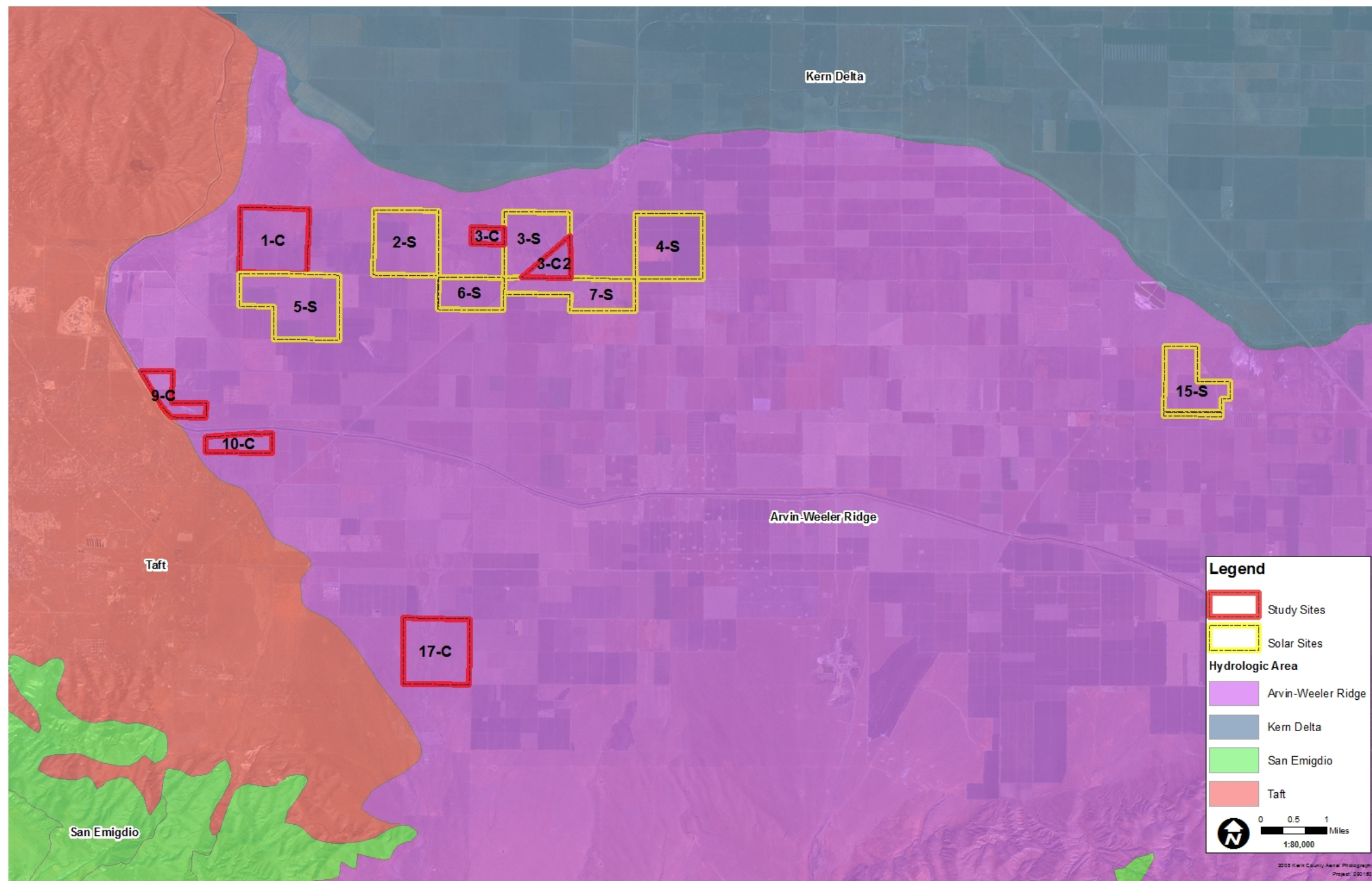
Other sources of water in the Buena Vista Lake Basin include intermittent streams from the south, such as Bitter Creek, Santiago Creek, Los Lobos Creek, the San Emigdio Creek complex, Pleito and Pleitito Creeks, the Salt Creek complex, and Tecuya Creek, which drain the San Emigdio Mountains portion of the Transverse Ranges. These waters are largely dispersed before reaching the historic Buena Vista Lake Bed. The drainage ways are dry much of the year, but carry extremely heavy flows during thunderstorms and spring runoff (United States Department of Agriculture, 2009). Most of these drainages have been disked and planted to orchards and other crops within the immediate vicinity of the Project, and as such, their waters have been diverted and mostly eliminated from historic channels.

Portions of the project area are currently mapped by the Federal Emergency Management Agency (FEMA) as Flood Zone A, and are therefore designated as within the 100-year flood zone (Figure 10). All of Sites 3-C, 3-C2, and 17-C occur within a 100-year Flood Zone (Figure 10). A portion of Sites 1-C and 9-C occur within a 100-year Flood Zone (Figure 10). Site 10-C does not occur within a 100-year Flood Zone (see Figure 10). Based on flood maps, flooding is likely related to heavy rain fall in the Transverse Range, which flows down the alluvial slopes via streams to the south.

3.1.4 SPECIAL STATUS SPECIES KNOWN FROM THE REGION

Based upon the database search and literature investigations, 5 sensitive natural communities, 10 species of special status plants, and 38 species of special status animals are known within the Project region (Tables 9 and 10). There are historical records of three sensitive habitat communities, 18 special status plant species, and 33 special status wildlife species occurring within 5 miles of the Project (Figures 11A, 11B, 11C, and 11D). CNDDDB records of San Joaquin kit fox, burrowing owl, Tipton kangaroo rat, Nelson's antelope squirrel, and blunt-nosed leopard lizard occur on and adjacent to the study sites (Table 11). The detailed information is provided below:





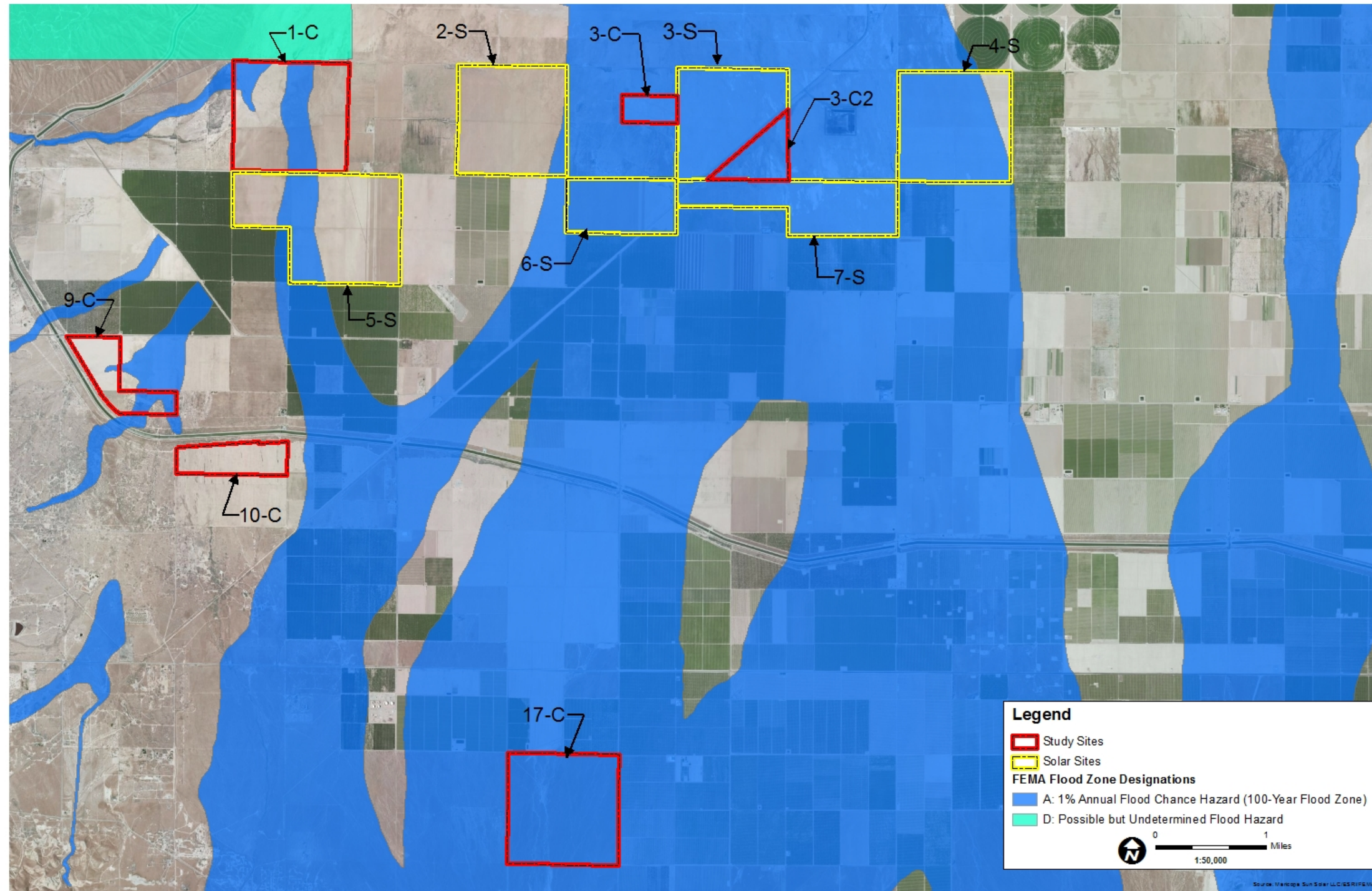


Table 9
Sensitive Vegetation Communities and Special Status Plant Species
Occurring in the Region of the Maricopa Sun Solar Complex Project
(Source: CNDDDB 2010, CNPS 2010, USFWS 2009, and CDFG 2009)

Scientific Name	Common Name	Status
Sensitive vegetative communities		
Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	Protected under CEQA
Great Valley Mesquite Scrub	Great Valley Mesquite Scrub	Protected under CEQA
Valley Sacaton Grassland	Valley Sacaton Grassland	Protected under CEQA
Valley Saltbush Scrub	Valley Saltbush Scrub	Protected under CEQA
Valley Sink Scrub	Valley Sink Scrub	Protected under CEQA
Plants		
<i>Allium howellii</i> var. <i>clokeyi</i>	Mt. Pinos onion	1B.3
<i>Astragalus hornii</i> var. <i>hornii</i>	Horn's milk-vetch	1B.1
<i>Atriplex cordulata</i>	Heartscale	1B.2
<i>Atriplex tularensis</i>	Bakersfield smallscale	CE, 1B.1
<i>Atriplex vallicola</i>	Lost Hills crownscale	1B.2
California (<i>Erodium</i>) <i>macrophyllum</i>	round-leaved filaree	1B.1
<i>Caulanthus californicus</i> (<i>Stanfordia californica</i>)	California jewel-flower	FE, CE, 1B.1
<i>Caulanthus coulteri</i> var. <i>lemmonii</i>	Lemmon's jewel-flower	1B.2
<i>Cirsium crassicaule</i>	slough thistle	1B.1
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>	Hispid bird's beak	1B.1
<i>Delphinium recurvatum</i>	recurved larkspur	1B.2
<i>Eremalche kernensis</i>	Kern mallow	FE, 1B.1
<i>Eriastrum hooveri</i>	Hoover's eriastrum	4.2
<i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i>	Tejon poppy	1B.1
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	1B.1
<i>Layia hetereotricha</i>	Pale-yellow layia	1B.1
<i>Layia leucopappa</i>	Comanche Point layia	1B.1
<i>Monardella linoidea</i> ssp. <i>oblonga</i>	tehachapi monardella	1B.3
<i>Monolopia congdonii</i>	San Joaquin woollythreads	FE, 1B.2
<i>Stylocline citroleum</i>	oil neststraw	1B.1

Status Definitions

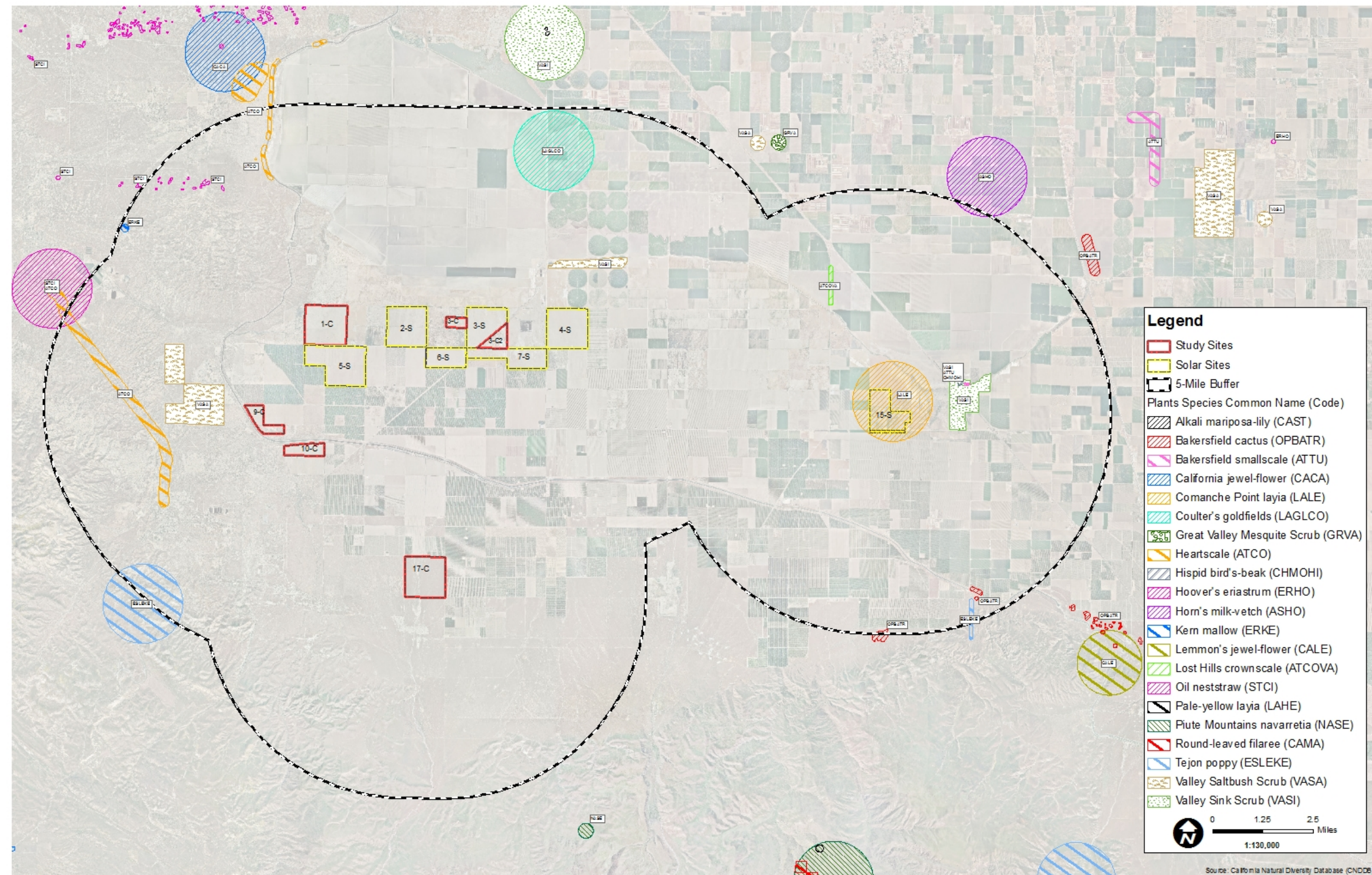
- FE Federally Endangered
- CE California Endangered
- 1B.1 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Seriously Endangered in California
- 1B.2 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Fairly Endangered in California.
- 1B.3 California Native Plant Society List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere; Not Very Endangered in California
- 4.2. Plants of limited distribution - Watch list; Fairly endangered in California (20-80% occurrences threatened)

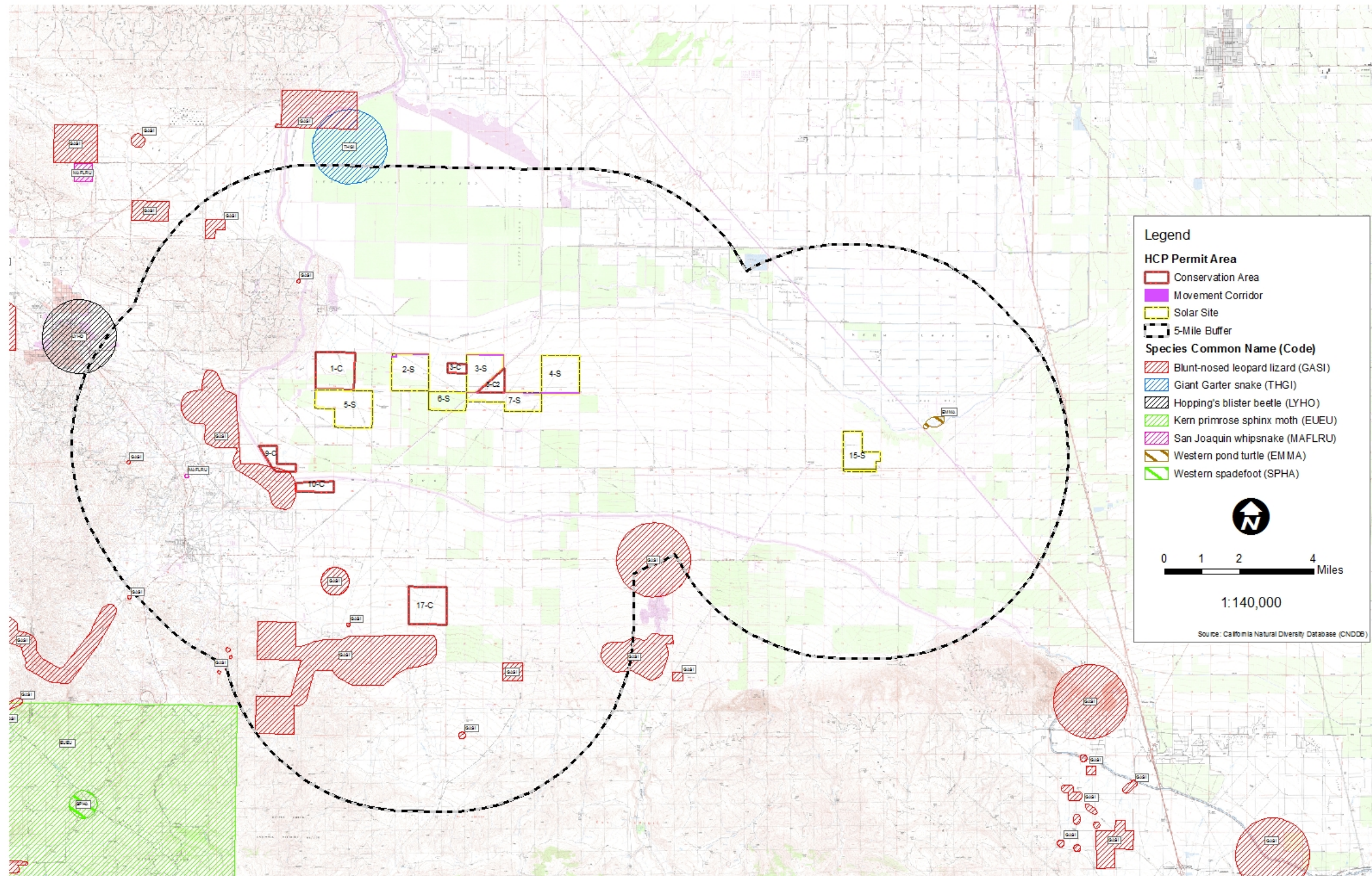
Table 10
Special Status Wildlife Species
Occurring in the Region of the Maricopa Sun Solar Complex Project
 (Source: CNDDDB 2010, CNPS 2010, USFWS 2009, and CDFG 2009)

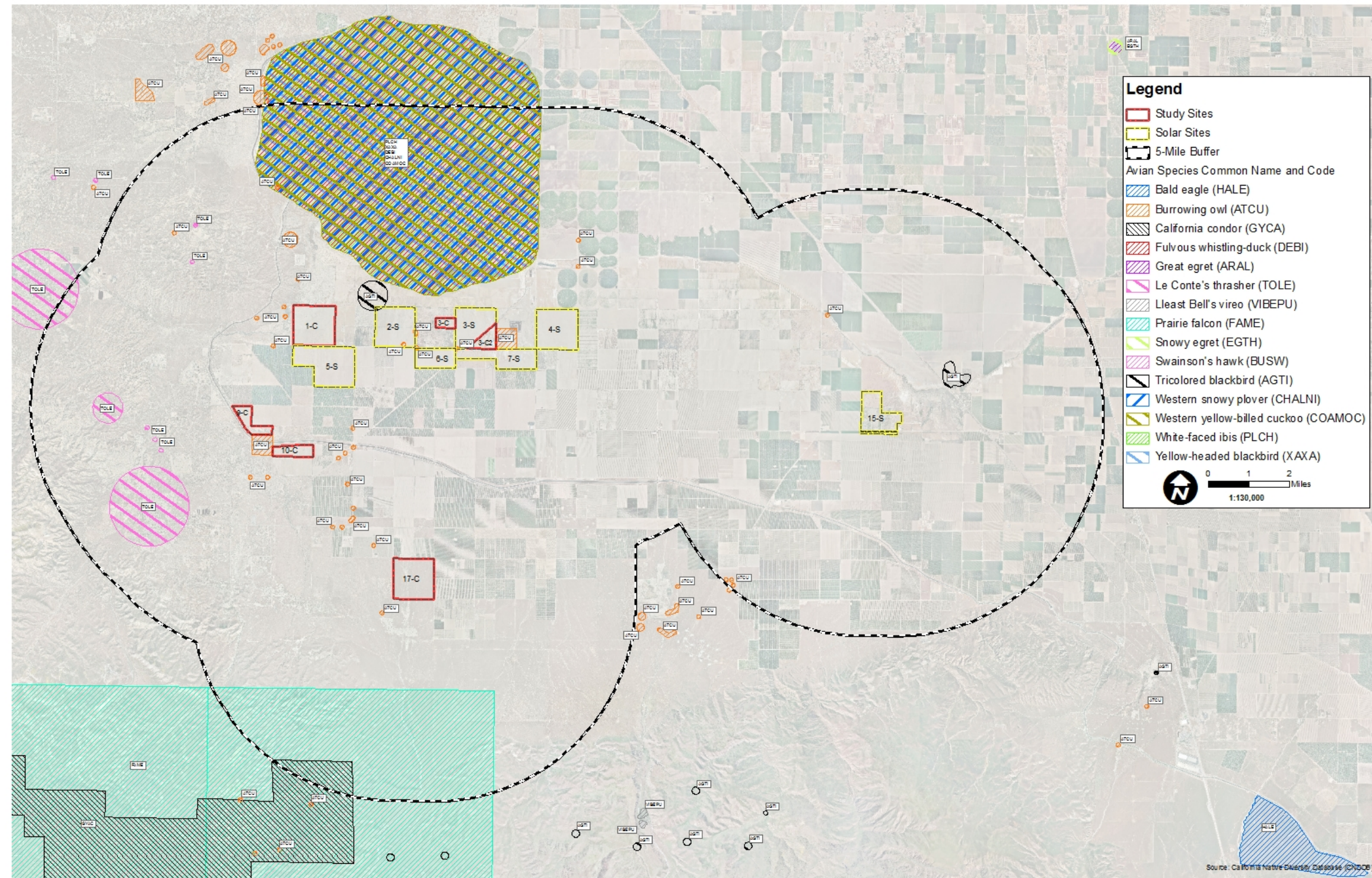
Scientific Name	Common Name	Status
Invertebrates		
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT
<i>Desmocerus californicus dimorphus</i>	Valley elderberry longhorn beetle	FT
<i>Euproserpinus euterpe</i>	Kern primrose sphinx moth	FT
Fishes		
<i>Hypomesus transpacificus</i>	Delta smelt	FT, CT
Amphibians		
<i>Rana aurora draytonii</i>	California red-legged frog	FT
<i>Spea hammondi</i>	western spadefoot	CSSC
Reptiles		
<i>Actinemys marmorata pallida</i>	western pond turtle	CSSC
<i>Anniella pulchra pulchra</i>	silvery legless lizard	CSSC
<i>Gambelia sila</i>	blunt-nosed leopard lizard	CE, FE, FP
<i>Masticophis flagellum ruddocki</i>	San Joaquin whipsnake	CSSC
<i>Phrynosoma blainvillii</i>	Blainville's horned lizard	CSSC
<i>Thamnophis gigas</i>	giant garter snake	FT, CT
Birds		
<i>Agelaius tricolor</i>	tricolored blackbird	CSSC
<i>Athene cunicularia</i>	burrowing owl	CSSC, MBTA
<i>Buteo swainsoni</i>	Swainson's hawk	CSSC
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	FT
<i>Charadrius montanus</i>	mountain plover	CSSC
<i>Circus cyaneus</i>	Northern harrier	CSSC
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	CE
<i>Dendrocygna bicolor</i>	fulvous whistling-duck	CSSC
<i>Elanus leucurus</i>	white-tailed kite	FP
<i>Eremophila alpestris actia</i>	California horned lark	CDFW: WL
<i>Falco mexicanus</i>	prairie falcon	CDFW: WL
<i>Gymnogyps californianus</i>	California condor	FE, CE
<i>Lanius ludovicianus</i>	Loggerhead shrike	CDFW: WL
<i>Plegadis chihi</i>	white-faced ibis	CDFW: WL
<i>Toxostoma lecontei</i>	Le Conte's thrasher	CSSC
<i>Xanthocephalus xanthocephalus</i>	yellow-headed blackbird	CSSC
Mammals		
<i>Ammospermophilus nelsoni</i>	Nelson's antelope squirrel	CT
<i>Dipodomys ingens</i>	giant kangaroo rat	FE, CE
<i>Dipodomys nitratoideus brevinasus</i>	short-nosed kangaroo rat	CSSC
<i>Dipodomys nitratoideus nitratoideus</i>	Tipton kangaroo rat	FE, CE
<i>Eumops perotis californicus</i>	western mastiff bat	CSSC
<i>Onychomys torridus tularensis</i>	Tulare grasshopper mouse	CSSC
<i>Perognathus inornatus inornatus</i>	San Joaquin pocket mouse	CSSC, BLMS
<i>Sorex ornatus relictus</i>	Buena Vista Lake shrew	FE, CSSC
<i>Taxidea taxus</i>	American badger	CSSC
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE, CT

Status Definitions

FT	Federally Threatened	FP	California Fully Protected
FE	Federally Endangered	BLMS	Bureau of Land Management Sensitive
CT	California Threatened	CDFW: WL	California Department of Fish and Game Watch List
CE	California Endangered	MBTA	Migratory Bird Treaty Act
CSSC	California Species of Special Concern		







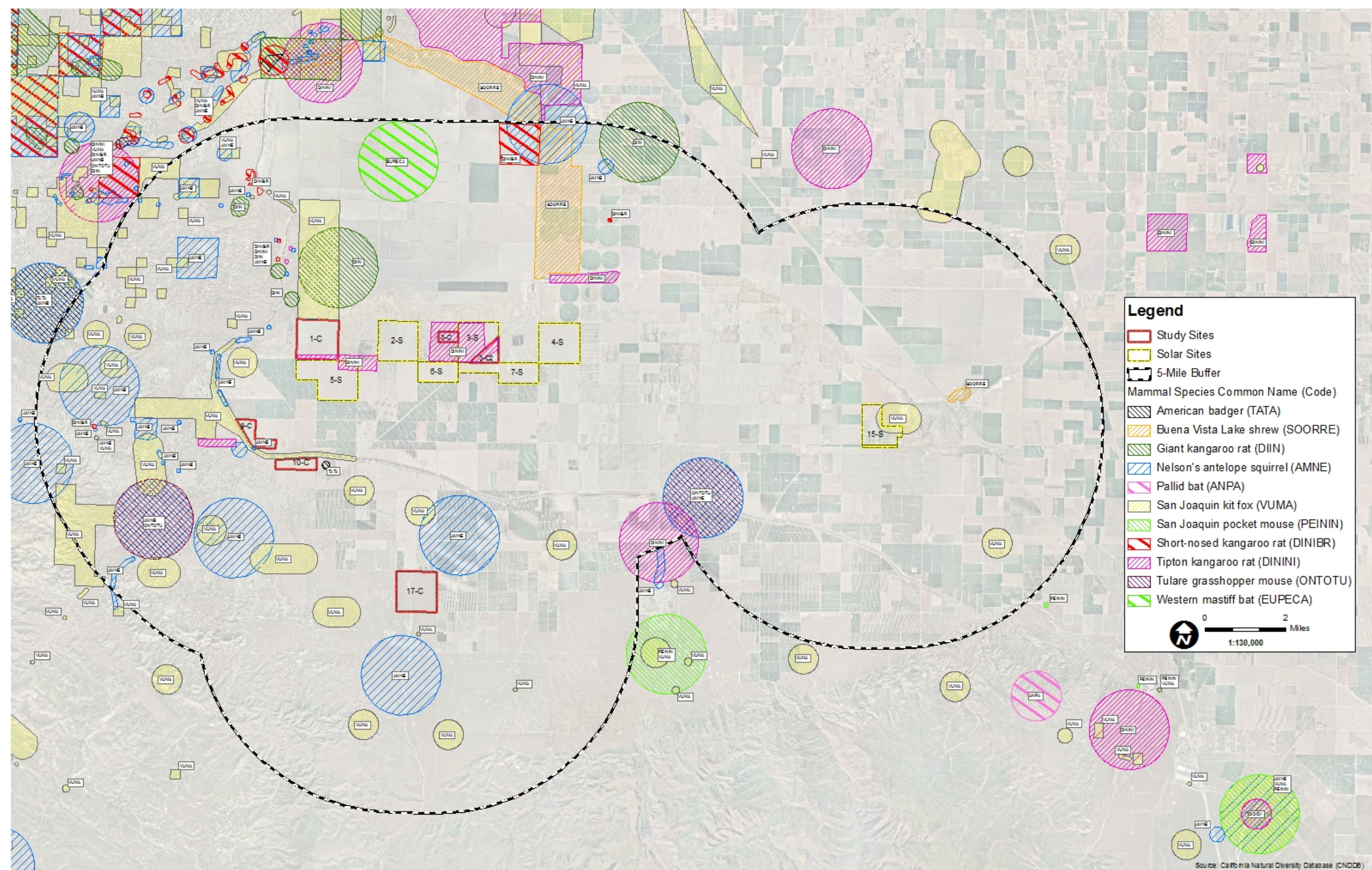


Table 11
Historic Occurrences of Covered Species on the Study Sites and on Adjacent Lands
within the Maricopa Sun Solar Complex Project Area
 (Source: CNDDB 2010, 2011, 2013)

Study Site	1-C	3-C	3-C2	9-C	10-C	17-C
Historic Occurrence of Covered Species on Study Sites						
San Joaquin kit fox				X		
Tipton kangaroo rat	X	X	X			
Nelson's antelope squirrel				X		
Blunt-nosed leopard lizard				X		
Burrowing owl			X		X	
Historic Occurrence of Covered Species on Adjacent Land						
San Joaquin kit fox	X			X	X	X
Tipton kangaroo rat	X	X	X	X	X	
Nelson's antelope squirrel	X			X	X	X
Blunt-nosed leopard lizard	X			X	X	X
Burrowing owl	X	X	X	X	X	X
X Documented historic occurrence						

- Sightings of San Joaquin kit fox were recorded on May 1987 immediately north of Site 1-C, and on August 24, 1998 in the western portion of Site 9-C (APN 220-050-42, APN 220-201-02) and adjacent to the north side of Site 10-C (Figure 11D). Multiple historical records of San Joaquin kit fox from 1975 through 1991 are present to the south and west of Site 17-C, with the closest record located approximately 0.5 miles to the south of this Site (Figure 11D).

3.2 General Site Conditions

Study site 17-C is composed of a mosaic of saltbush scrub and alkali goldenbush, the southern 83.25 acres of Site 9-C supports saltbush scrub habitat, and Site 3-C2 is primarily composed of disturbed annual grassland that is recovering from past disking. The levee in the northwest corner of Site 1-C is vegetated with saltbush scrub and Mojave seepweed. All other study sites are routinely disked and do not support vegetation, except for weedy and invasive species that colonize between periods of disking. Specific conditions present on each site are described below.

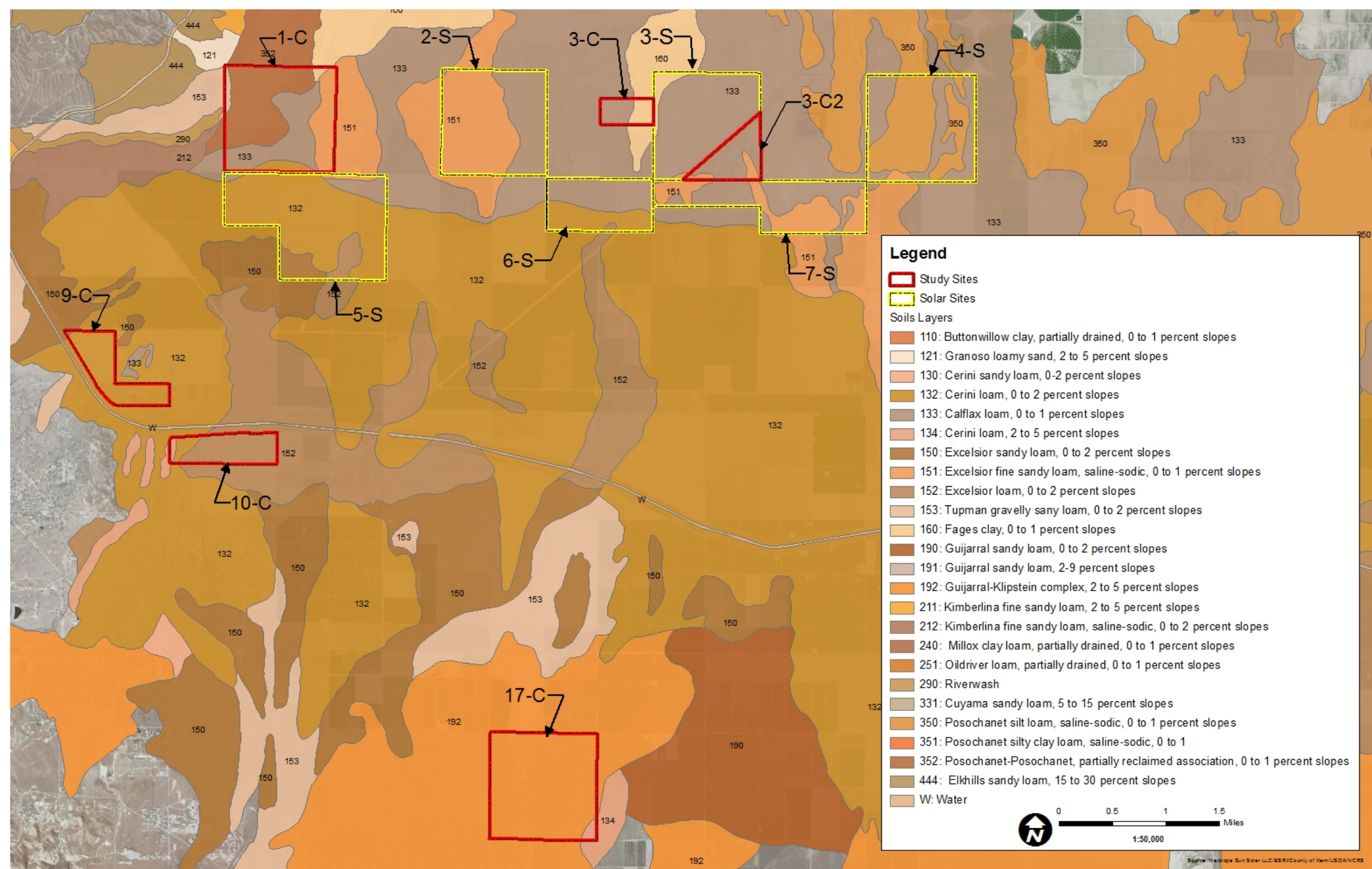
3.2.1 SITE 1-C

Site 1-C is composed of two parcels, APN 220-120-14 and APN 220-120-15, totaling 656.6 acres (Figure 2). It is located in Township 32S, Range 25E, Section 19. Elevation of the study site ranges from approximately 320 feet AMSL in the northeast corner to approximately 380 feet AMSL in the southwest corner. The entirety of this site has been disked on a recurring basis and the topography of the site is mainly flat, except for the tops and sides of a levee located in the northwest corner of the property and the canal that runs along the northern site boundary.

The site is barren, except for some sparse occurrences of weedy plant species that persist after disking. Species observed on the site include fiddleneck (*Amsinckia menziesii*), orchard bindweed (*Convolvulus arvensis*), Bermuda grass (*Cynodon dactylon*), London rocket (*Sisymbrium irio*), tamarisk and quailbush (*Atriplex lentiformis*). There are scattered Valley Saltbush Scrub and Mojave seepweed occurring along the levee in the northwest corner of the site and within basins associated with the levee. The levee and associated vegetated areas total 2.44 acres.

The surrounding lands adjacent to the north and west of the site contain native Valley Sink Scrub and Valley Saltbush Scrub habitat, which are known to support sensitive species. The other surrounding land use includes alfalfa (*Medicago sativa*) production to the east, orchards to the southwest and disked fields to the south and southeast of the site.

According to the USDA soil survey for Kern County, Site 1-C consists of six soil types; Cerini loam (0 to 2 percent), Calflax loam (0-1 percent slopes), Excelsior fine sandy loam, saline-sodic (0-1 percent slopes), Tupman gravelly sandy loam (0-2 percent slopes), Fages clay (0-1 percent slopes), and Posochanet-Posochanet (partially reclaimed association, 0-1 percent slopes) (Figure 12). Calflax loam and Posochanet-Posochanet are primary soil types present within the site.



Excelsior fine sandy loam occurs along the east perimeter, a small area of Fages clay occurs in the northeast corner, Tupman gravely sandy loam occurs along the west perimeter, and a small amount of Cerini loam occurs in the south (Figure 12).

The northeast corner and central portion of Site 1-C are within a 100-year flood zone (Figure 10). The NWI shows several Freshwater Shrub Wetlands described as Palustrine Scrub-Shrub Temporarily Flooded (PSSA) features occurring along a levee in the northwest corner of this site (USFWS 2012) (Figure 13). The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 parts per thousand (ppt). Wetlands lacking such vegetation are also included if they exhibit all of the following characteristics: 1) are less than 20 acres; 2) do not have an active wave-formed or bedrock shoreline feature; 3) have at low water a depth less than 6.6 feet in the deepest part of the basin; and 4) have a salinity due to ocean-derived salts of less than 0.5 ppt. The scrub-shrub class includes areas dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions. Surface water is present for brief periods during growing season, but the water table usually lies well below the soil surface for most of the growing season. Plants that grow both in uplands and wetlands may be characteristic of this water regime (Cowardin et al. 1979). The 7.5 minute USGS topographic quadrangle depicts two blue-line drainages, one located in the northwest corner and the other traversing through the center of the site in the east-west direction (Figure 14).

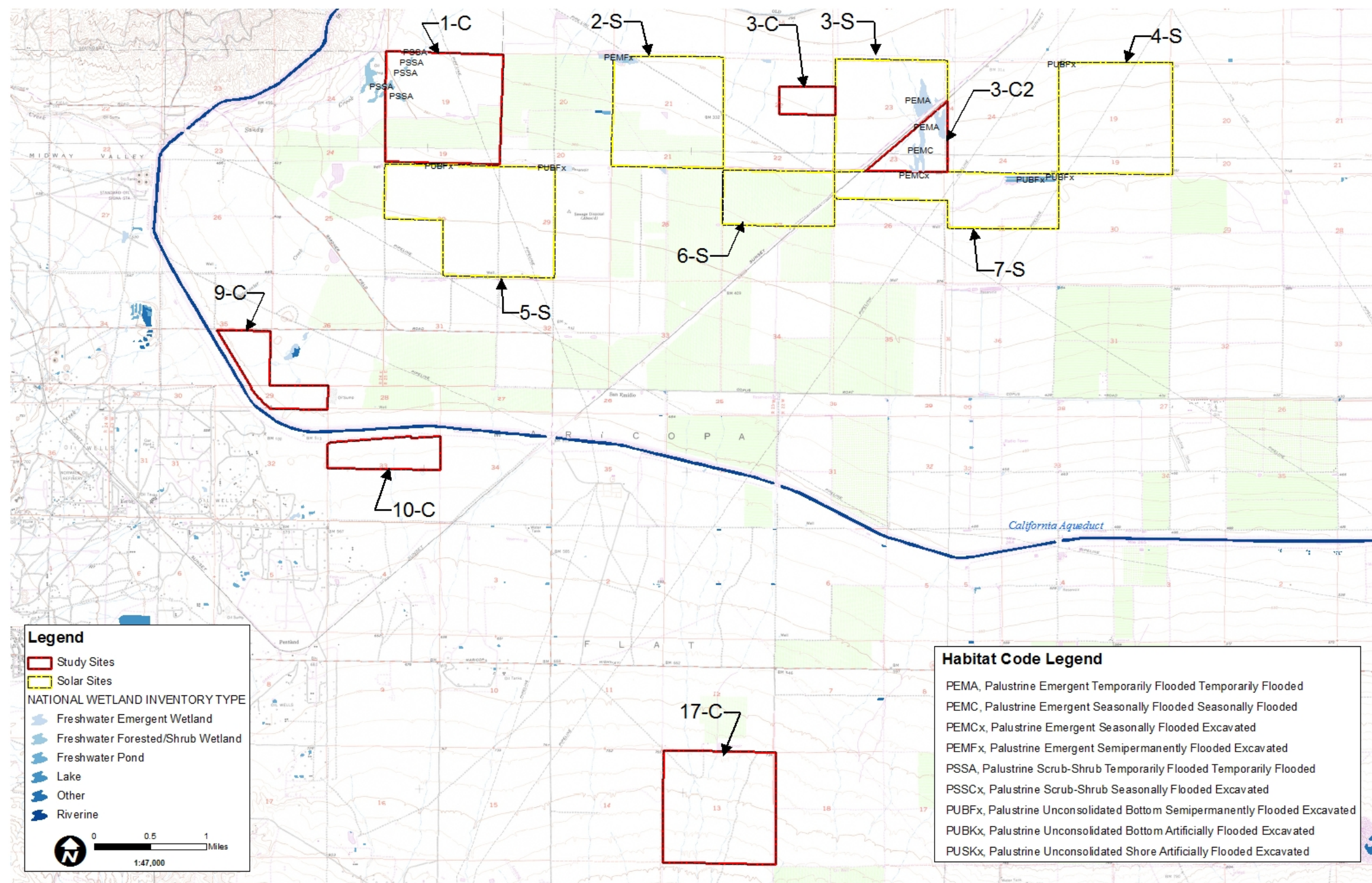
3.2.2 SITE 3-C

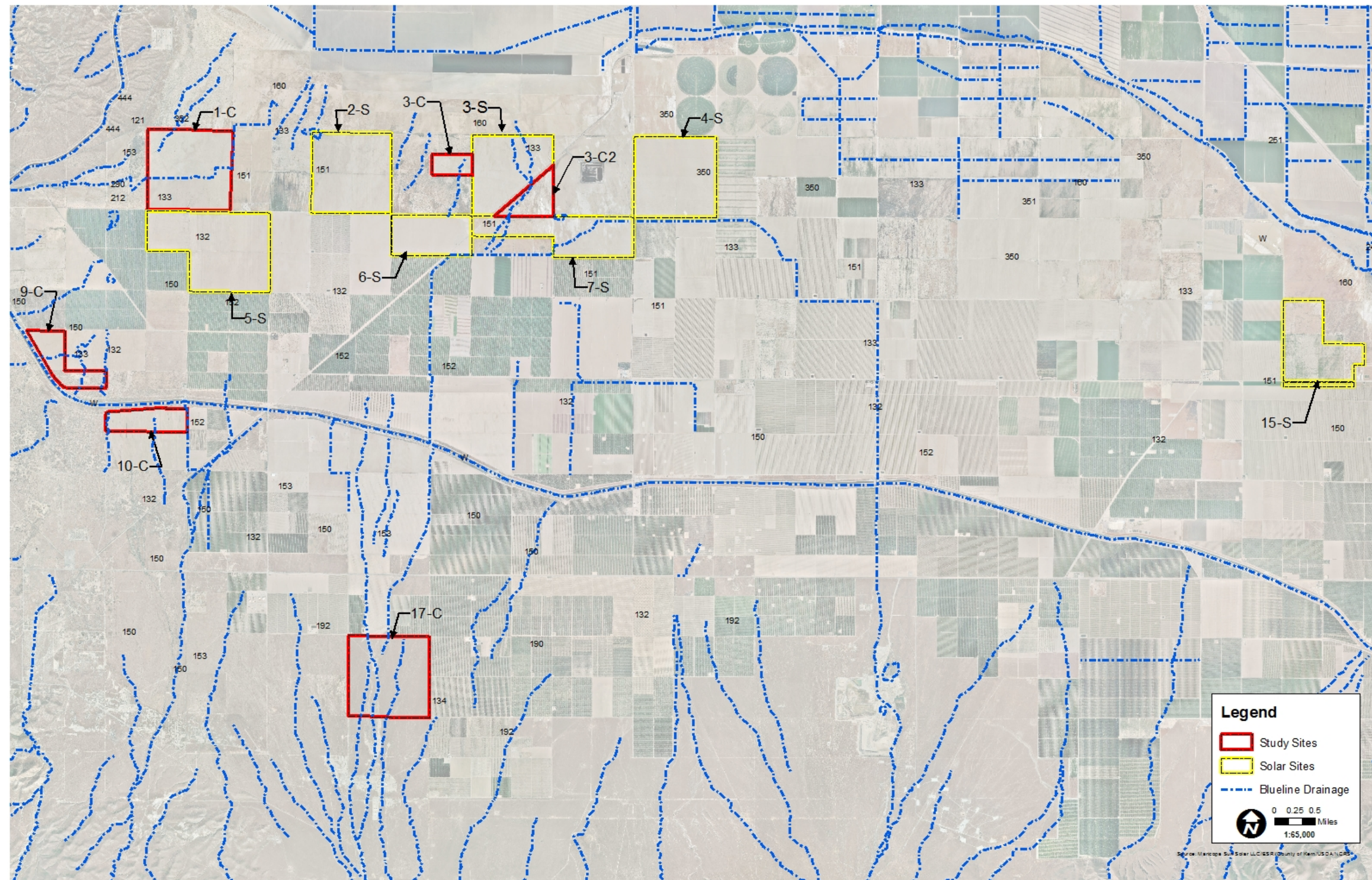
Site 3-C is composed of a single parcel, APN 220-110-10, totaling 80.4 acres (Figure 2). The area is located in Township 32S, Range 25E, Section 23. Elevation of the study site ranges from approximately 315 feet AMSL in the north to approximately 325 feet AMSL in the south. The entirety of this site has been disked on a recurring basis and the topography of the site is mainly flat; however, some low relief occurs because the site has not been laser-leveled. The site is sparsely vegetated with weedy plant species, including Mojave seepweed.

The surrounding lands adjacent to the north, south, and west of Site 3-C contain native Valley Sink Scrub and Valley Saltbush Scrub habitat. A disked field is located to the east of this area. This field has been disked on a recurring basis and is nearly devoid of vegetation.

According to the USDA soil survey for Kern County, Site 3-C consists of two primary soil types: Calflax loam (0-1 percent slopes) in the west part, and Fages clay (0-1 percent slopes) in the east part (Figure 12).

The entire site occurs within a 100-year flood zone (Figure 10). No previously identified wetland habitat occurs on or within 100 feet of Site 3-C (USFWS 2012) (Figure 13). The 7.5 minute USGS topographic quadrangle depicts one blue-line drainage as traversing the eastern portion of this site (Figure 14).





3.2.3 SITE 3-C2

Site 3-C2 is composed of a single parcel, APN 220-110-08, totaling 152.9 acres (Figure 2). The area is located in Township 32S, Range 25E, and Section 23. Elevation of the study site ranges from approximately 320 feet AMSL throughout. The topography of the site is mainly flat with the exception of some topographic relief along the levee of an historic railroad right-of-way that is located along the northwest perimeter, and along a canal that runs along the east side of the site. The entirety of this site is fallow land sparsely vegetated with weedy annual plant species, including London rocket, five-hook bassia (*Bassia hyssopifolia*), black mustard (*Brassica nigra*), seepweed, Russian thistle (*Salsola tragus*), Mediterranean grass (*Schismus* sp.), salt grass (*Distichlis spicata*), tamarisk, quailbush, annual weedy chenopods (primarily *Chenopodium album*) and annual sunflower (*Helianthus annuus*). The vegetation along the canal consists of relatively dense quailbush and scattered tamarisk. Annual weedy chenopods and *Helianthus* are also present within and along the canal. The railroad right-of way is dominated by quailbush and *Helianthus*.

The adjacent land consists of a disked field adjacent to the southern border. A fallow field that is dominated by five-hook bassia, with a small patch of Valley Sink Scrub that is highly degraded through repetitive disking is present to the east of the site. Native habitat with an expanse of chenopod scrub habitat is present to the north, and a disked field that is separated from the site by South Lake Road is present to the west.

According to the USDA soil survey for Kern County, Site 3-C2 contains two soil types; Calflax loam (0-1 percent slopes) and Excelsior fine sandy loam, saline-sodic (0-1 percent slopes) (Figure 12). Calflax loam is the primary soil type, overlapping almost the entire site. Small areas of Excelsior fine sandy loam are reported to be in the southwest and southeast corners of the site (Figure 12).

The entire site is within a 100-year flood zone (Figure 10). The NWI shows Freshwater Emergent Wetlands described as Palustrine Emergent Temporarily Flooded (PEMA) and Palustrine Emergent Seasonally Flooded (PEMC) features occurring in a north-south orientation throughout the site (USFWS 2012) (Figure 13).

No evidence of PEMC features or PEMA features was observed on this site. This finding was verified in the field by the ACOE. Similarly, although the 7.5 minute USGS topographic quadrangle depicts one blue-line drainage as traversing along the northwest boundary of this site (Figure 14), no evidence of such a feature was observed. Past disking of the site may have eliminated these features if they were present.

3.2.4 SITE 9-C

Site 9-C is composed of two parcels, APN 220-201-02 and APN 220-050-42, totaling 180.6 acres (Figure 2). It is located in Township 12N, Range 23W, and Section 29. Elevation of the study site averages approximately 490 feet AMSL. The northernmost portion of 9-C (APN 220-050-42) has been disked on a biannual basis and is mostly flat. Some low relief is present because this site has not been laser-leveled. The southernmost portion of Site 9-C (APN 220-

201-02, which is 83.25 acres) has natural topography, except for a 10.46-acre area near the center, which shows signs of disturbance consisting of mounds of dirt and other disturbances.

The northernmost portion of Site 9-C is nearly devoid of vegetation due to the recurring disking, but it is very sparsely vegetated with Russian thistles. The southernmost portion of Site 9-C is vegetated with chenopod scrub habitat containing Valley Saltbush Scrub, a sensitive vegetative community that is dominated by Valley Saltbush Scrub with sparse ground cover of fiddleneck, Mediterranean grass, London rocket, prickly lettuce (*Lactuca serriola*), red brome (*Bromus rubens*), ripgut brome (*Bromus diandrus*), and filaree (*Erodium* sp.).

The land to the west and south of Site 9-C includes the California Aqueduct right-of-way, which is a known corridor for a variety of special status wildlife species. These areas and other contiguous habitat areas are vegetated with native chenopod scrub habitat composed of valley saltbush shrubs with a ground cover of Coulter's conyza (*Conyza coulteri*), goldenbush (*Isocoma acediana*), Kellogg's tarweed (*Hemizonia kelloggii*), telegraph weed (*Heterotheca grandiflora*), yellow start-thistle (*Centaurea solstitialis*), fiddleneck, London rocket, red brome, ripgut brome, soft brome (*Bromus hordeaceus*), Mediterranean grass, and filaree. The land east of parcel APN 200-201-02 consists of non-native grassland habitat dominated by prickly lettuce, Jimson weed (*Datura stramonium*), a few scattered chenopod shrubs, and sparse grass cover exhibiting signs of previous sheep grazing (i.e., sheep pellets, tracks, and a sheep carcass). A disked field is located immediately north of this parcel. Cadet Road, which is to the north of Site 9-C, separates this area from almond orchards.

According to the USDA soil survey for Kern County, Site 9-C consists of two different soil types: Cerini loam (0 to 2 percent slopes) and Excelsior loam (0 to 2 percent slopes) (Figure 12). The primary soil type is Cerini loam, which overlaps the entire site except for the northwest corner, where a small area of Excelsior sandy loam is reported (Figure 12).

Parts of the southern 83.25 acres of Site 9-C are within a 100-year Flood Zone A, which is located in the middle and eastern portions of this area (Figure 10). The NWI shows no wetland features within this area (USGS 2012) (Figure 13). The 7.5 minute USGS topographic quadrangle depicts three blue-line drainages traversing the central portion (Figure 14). Our field observations support the lack of wetland features and revealed that, due to repeat disking, no evidence remains of the blue-line drainages.

3.2.5 SITE 10-C

Site 10-C is composed of one parcel, APN 220-201-05, totaling 176.2 acres. It is located in Township 11N, Range 23W, and Section 13 (Figure 2). Elevation of the study site ranges from approximately 500 feet AMSL along the California Aqueduct to approximately 530 feet AMSL in the south. Site 10-C is repeatedly disked for weed control and the topography is mainly flat. Some minor relief remains, because the site has not been laser-leveled.

The entirety of this site is nearly devoid of vegetation except for a few patches of Russian thistle and five-hook bassia. Irrigation standpipes and pumps on this site indicate past agricultural use.

The habitat immediately adjacent to the south side of this site is a disked field. The habitat adjacent to the west of this area is vegetated with Valley Saltbush, which is dominated with valley saltbush and quailbush shrubs. Other species found in this area include tamarisk, tree tobacco (*Nicotiana glauca*), annual sunflower, London rocket, annual bursage (*Ambrosia acanthicarpa*), five-hook bassia, yellow start-thistle, Russian thistle, fiddleneck, peppergrass (*Lepidium* sp.), dove weed (*Eromocarpus setigerus*), white horehound (*Marrubium vulgare*), filaree, red brome, soft brome, and other non-native grasses. The habitat to the north along the California Aqueduct right-of-way is vegetated with chenopod scrub containing allscale saltbush, quailbush, tamarisk, goldenbush, Coulter's conyza, yellow start-thistle, fiddleneck, dove weed, soft brome, and other unidentified grasses. The California Aqueduct right-of-way is a known corridor for a variety of special status wildlife species. Along the east side of the site is a disked field.

According to the USDA soil survey for Kern County, Site 10-C consists of three different soil types: Cerini loam (0 to 2 percent slopes), Cerini loam (2-5 percent slopes), and Excelsior loam (0-2 percent slopes) (Figure 12). Excelsior loam is the primarily soil type, but there is an area of Cerini loam (0 to 2 percent slopes) and a small area of Cerini loam (2 to 5 percent slopes) along the western perimeter of this site (Figure 12).

Site 10-C is not within a 100-year flood zone (Figure 10). The NWI shows no wetland features on or near this study site (USGS 2012) (Figure 13). Two isolated blue-line drainages are shown on the 7.5-minute USGS topographical quadrangle traversing the central and western portions of the site, in a north-south orientation (Figure 14). Our field observations do not support the latter finding, but evidence of the blue-lines may have been obliterated by disking.

3.2.6 SITE 17-C

The Site 17-C is composed of one parcel, APN 239-150-11, totaling 647.7 acres. It is located in Township 11N, Range 23W, and Section 13 (Figure 2). Elevation of the study site ranges from approximately 750 feet AMSL in the north to approximately 890 feet AMSL in the southwest corner. Site 17-C has natural topography and has never been actively farmed or tilled.

Vegetation on the site is a Chenopod Scrub Non-native grassland mosaic, although Chenopod Scrub dominates. Valley saltbush is the dominant shrub, but alkali goldenbush (*Isocoma acradenia*) is also relatively common in some areas, especially on the eastern half of the site. Other shrub species that are present include cheesebush (*Hymenoclea salsola*) and loco weed (*Astragalus setigerus*). The shrub understory and patches of Non-native Grasslands that are present on the site are dominated by redstem stork's bill (*erodium cicutarium*), cryptantha (*cryptantha* sp.), peppergrass (*Lepidium nitidum*), and brome grasses (*Bromus madritensis rubens* and *Bromus diandrus*). Other annual species that are common include tarweed (*Hemizonia pallida*), dove weed, and small fescue (*Vulpia microstachys*).

The surrounding land use is citrus orchards to the north and east, and grazing lands to the west and south. There is oilfield activity to the south of the site.

According to the USDA soil survey for Kern County, Site 17-C consists of two different soil types: Cerini loam (2-5 percent slopes) and Gujarral-Klipstein complex (2 -5 percent slopes) (Figure 12). The Gujarral-Klipstein complex overlaps the entire site, except the southeast corner, where a small amount of Cerini loam is present (Figure 12). Scattered patches of gravel, rock, and boulders are present on the ground surface.

The entire site is located within a 100-year flood zone (Figure 10). The NWI shows no wetland features on or near this site (USGS 2012) (Figure 13). The 7.5-minute USGS topographical quadrangle depicts three primary blue-line drainages and one secondary blue-line drainage bisecting this area from south to north (Figure 14). On the basis of our field observations, there are two primary washes within the drainage complex. These washes are sometimes as wide as 15 feet and as deep as 10 feet. Within these washes is evidence of severe gully erosion and past flash flooding.

3.3 *Site-specific Biological Conditions*

This section provides information on site-specific biological conditions, including occurrences of sensitive vegetation communities and special status plant and wildlife species on and in the vicinity of the sites. This information is used to provide a justification for the suitability and acceptance of the proposed study sites as compensatory mitigation lands. The summary of findings is represented at the end of this section (Tables 12 and 13).

3.3.1 SITE 1-C

On-site Presence of Sensitive Vegetation Communities and Special Status Species

The site is barren, except for some sparse occurrences of weedy plant species that persist after disking. Species observed on the site include fiddleneck (*Amsinckia menziesii*), orchard bindweed (*Convolvulus arvensis*), Bermuda grass (*Cynodon dactylon*), London rocket (*Sisymbrium irio*), tamarisk and quailbush (*Atriplex lentiformis*). There are scattered Valley Saltbush Scrubs and Mojave seepweed occurring along the levee in the northwest corner of the site and within basins associated with the levee. The levee and associated vegetated areas total 2.44 acres (Table 12).

Valley saltbush shrubs and Mojave seepweed shrubs are components of the sensitive vegetative communities Valley Saltbush Scrub habitat and Valley Sink Scrub habitat; however, they do not comprise a functional, recognized sensitive vegetative community because of their limited distribution on the site. Substantial habitat that is similar in function and form is present west and north of the site, so the limited on-site habitat is nearly contiguous with a much broader landscape of similar vegetation. No special status plant species were observed. The CNDDDB records identified no special status plant species or sensitive habitat communities on Site 1-C, but it is likely that the area was once vegetated with Valley Saltbush scrub, which was presumably eliminated during the past disking.

The only special status wildlife species present on the site is Tipton kangaroo rat, which is present along the levee in the northwest corner of this site (Figure 15). Although the historic

records show the Tipton kangaroo rat occurring within the southern portion of the site (Figure 11D), there was no evidence (e.g., burrows, dust baths, scat) that this species currently exists there. Although there are no other CNDDDB records shown for Site 1-C, and no San Joaquin kit fox, Nelson's antelope squirrel, blunt-nosed leopard lizard or western burrowing owl were observed on the site, these species are present to the north and west of the site. They could potentially occur along the levee in the northwest corner of the site, within a remnant of suitable habitat that remains there.

It is anticipated that other special status wildlife species, including San Joaquin pocket mouse (*Perognathus inornatus inornatus*) and Tulare grasshopper mouse (*Onychomys torridus tularensis*) could occur within the remnant habitat that is present along the levee in the northwest corner of the site, but none were recorded during field surveys performed for the Project. San Joaquin kit fox and American badger (*Taxidea taxus*) may occasionally make forays onto and across the site. Similarly, other special status species, including western mastiff bat (*Eumops perotis californicus*) and white-tailed kite (*Elanus leucurus*) may occasionally overfly the site.

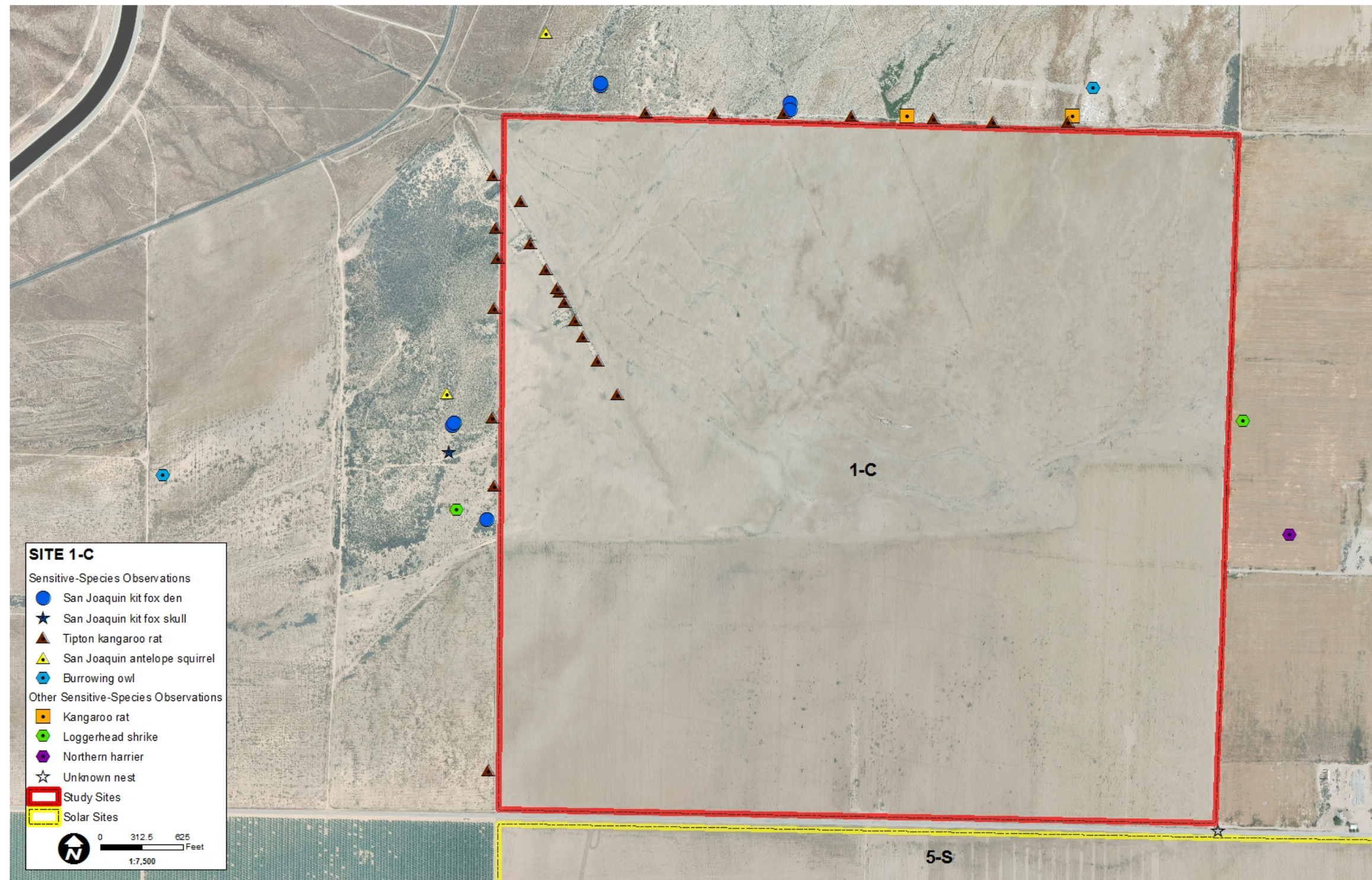
On-site Occurrence of Other Important Biological Resources

The NWI shows Freshwater Shrub Wetlands described PSSA features, occurring along a levee in the northwest corner of the site (USFWS 2012) (Figure 13). Although there are basins located in this area, there was no standing water at the time of the site survey, and the area does not qualify as a wetland because it lacks hydric soils and distinctive wetland vegetation. The repeated disking has nearly eliminated all surface evidence of the blue-line drainages shown on the USGS 7.5-minute topographical quadrangle in the northwest corner of the site and traversing the center of the site (Figure 14). Barely visible remnants of these historical drainages were observed on the site. The ACOE has assumed jurisdiction of these areas based upon an upstream determination of jurisdiction for another project.

Presence of Sensitive Vegetation Communities and Special Status Species on Adjacent Land

Two sensitive vegetative communities, Valley Sink Scrub and Valley Saltbush Scrub, are present on the land adjacent to the north and west of Site 1-C (Table 13). Special status plant species that might occur in this area include: heartscale (*Atriplex cordulata*), Lost Hills crownscale (*Atriplex vallicola*), recurved larkspur (*Delphinium recurvatum*), Kern mallow (*Eremalche kernensis*), Hoover's eriastrum (*Eriastrum hooveri*), Tejon poppy (*Eschscholzia lemmonii* ssp.), San Joaquin woollythreads (*Monolopia congdonii*), and oil neststraw (*Stylocline citroleum*). Historical records do not report the presence of sensitive vegetative communities or special status plant species in these areas.

San Joaquin kit fox were not observed during the night spotlighting or camera and bait track station surveys conducted on and in the vicinity of the site. However, a San Joaquin kit fox skull was found in the native Valley Sink Scrub and Valley Saltbush Scrub habitat immediately to the west, and several kit fox dens were identified in the native habitat located immediately west and



north of this site (Figure 15). A CNDDDB historic record indicates San Joaquin kit fox occurred immediately north of Site 1-C (Figure 11D). San Joaquin kit foxes likely occur in these native habitats and would occasionally traverse the site. The cessation of disking would likely increase the utilization of this site by the San Joaquin kit fox.

Tipton kangaroo rats were captured, and Nelson's antelope squirrels and burrowing owls observed in the native habitat adjacent to the north and west of Site 1-C (Figure 15). Historic records report these species on the adjacent land. A record of Tipton kangaroo rat is located adjacent immediately east of Site 1-C (Figure 11D), record of western burrowing owl is located on the adjacent land approximately 0.15 mile to the west (Figure 11C), and record of Nelson's antelope squirrel is located on the adjacent land, approximately 0.6 miles to the west (Figure 11D).

No blunt-nosed leopard lizards were observed during the field surveys; however, suitable habitat that could support this species is present on the adjacent land to the north and west of Site 1-C. An historic record of blunt-nosed leopard lizard is located approximately 1.8 miles north of Site 1-C (Figure 11B).

Sightings of other special status species in the vicinity of this site consist of northern harrier and loggerhead shrike, which were observed on the adjacent land to the west and east of Site 1-C (Figure 15). Other special status species that might also occur on the adjacent lands include American badger, San Joaquin pocket mouse, Tulare grasshopper mouse, and Le Conte's thrasher (*Toxostoma lecontei*). Other special status species, including western mastiff bat and white-tailed kite, may occasionally overfly the area.

3.3.2 SITE 3-C

On-site Presence of Sensitive Vegetation Communities and Special Status Species

The entirety of this site has been disked on a recurring basis and is nearly devoid of vegetation. There were no sensitive vegetation communities or special status plant species observed. The CNDDDB records identified no special status plant species or sensitive habitat communities occurring on Site 3-C (Table 12).

No special status wildlife species were observed on Site 3-C (Figure 16). One CNDDDB record reports the historical occurrence of Tipton kangaroo rat throughout the site (Figure 11D). However, the Tipton kangaroo rats are no longer present on this study site, presumably because of the recurring disking.

On-site Occurrence of Other Important Biological Resources

The NWI shows no previously identified wetlands occurring on or adjacent to Site 3-C (USFWS NWI 2012) (Figure 13). The repeated disking has eliminated all surface evidence of the blue-line drainage shown on the USGS 7.5-minute topographical quadrangle traversing the eastern portion of this area (Figure 14), and no remnants of this historical drainage were observed during field surveys. No other wetlands were observed on this site during field surveys.

Presence of Sensitive Vegetation Communities and Special Status Species on Adjacent Land

The surrounding lands adjacent to the north, south, and west of Site 3-C contain native Valley Sink Scrub and Valley Saltbush Scrub habitat (Table 13). Special status plant species that might occur in this area include heartscale, Lost Hills crownscale, recurved larkspur, Kern mallow, Hoover's eriastrum, Tejon poppy, San Joaquin woollythreads, and oil neststraw. The CNDDDB records identified no special status plant species or sensitive habitat communities occurring on the land adjacent to Site 3-C.

San Joaquin kit foxes or their diagnostic sign were not observed during the night spotlighting, or camera and bait track station surveys; however, there is a potential that kit foxes might occasionally be present because there is a suitable habitat present on adjacent land to support this species. The closest CNDDDB record of San Joaquin kit fox occurrence is located approximately 2.5 miles to the northwest (Figure 11D).

Tipton kangaroo rats were captured, and blunt-nosed leopard lizards and western burrowing owl were observed in the native habitat adjacent to the north, west, and south of Site 3-C (Figure 16). An historic record of Tipton kangaroo rat overlaps the adjacent habitat to the north, west and south of Site 3-C (Figure 11D). Historic records of western burrowing owl are located approximately 0.45 miles to the southwest and to the south of the site (Figure 11C). No CNDDDB records report Nelson's antelope squirrel or blunt-nosed leopard lizard on or in the vicinity.

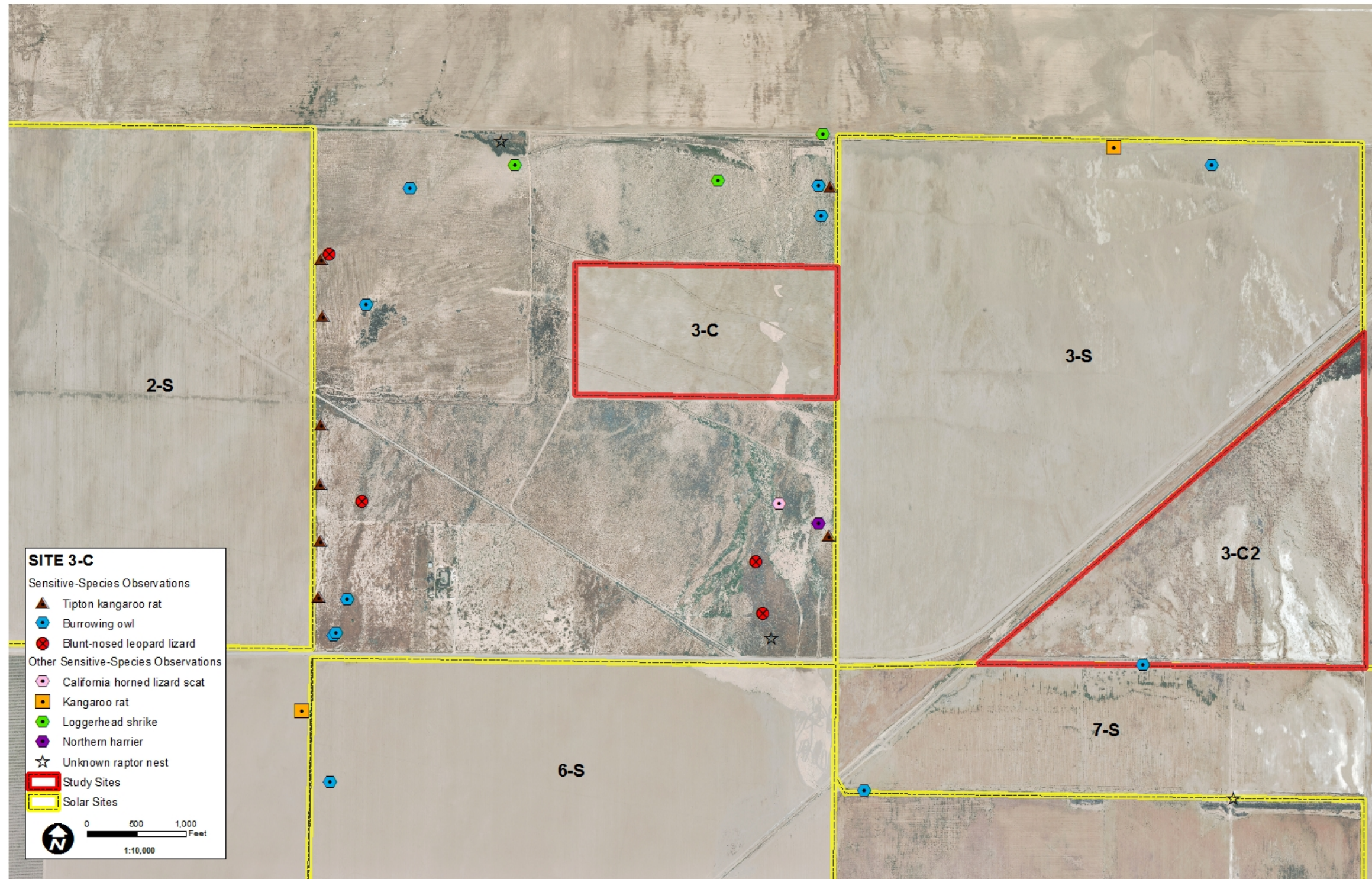
Sightings of other special status species consist of loggerhead shrike and northern harrier, which were observed in the adjacent native habitat (Figure 16). Blainville's horned lizard scat was observed on adjacent land (Figure 16). Other special status species that might also occur in the adjacent lands include American badger, San Joaquin pocket mouse, Tulare grasshopper mouse, and Le Conte's thrasher. Other special status species, including western mastiff bat and white-tailed kite, may occasionally overfly the area.

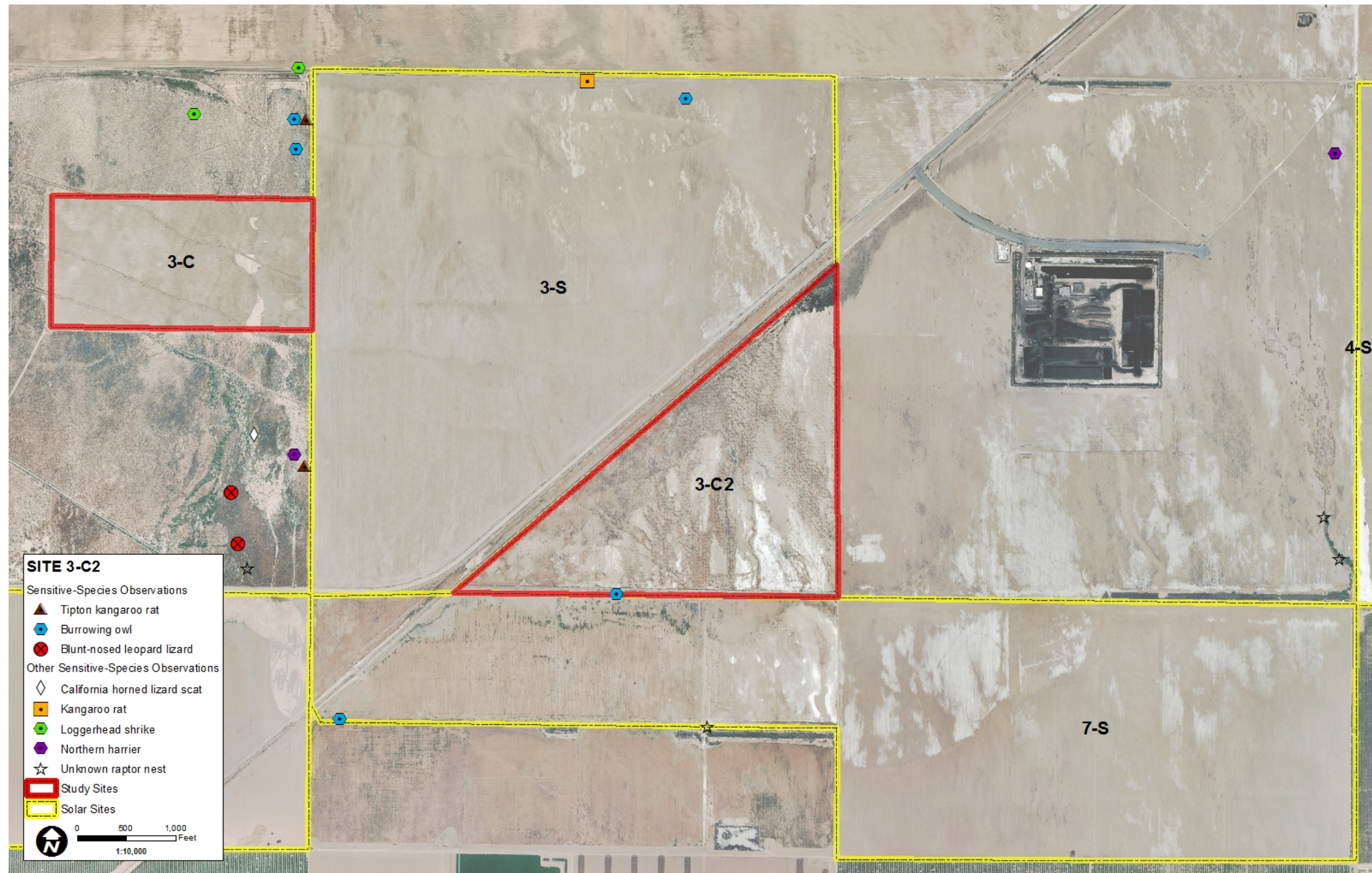
3.3.3 SITE 3-C2

On-site Presence of Sensitive Vegetation Communities and Special Status Species

Site 3-C2 consists of fallow land that is recovering from past disking activities. The CNDDDB records identified no special status plant species or sensitive habitat communities on Site 3-C2 (Table 12).

One sighting of a burrowing owl was recorded from this site, but no other special status species were observed (Figure 17). According to historic CNDDDB records, western burrowing owl occurs along the eastern boundary and to the east of this site (Figure 11C). Currently, that habitat is comprised primarily of very large and dense five-hook bassia, and this area is thought to be generally unsuitable for western burrowing owl.





There is an historic record of Tipton kangaroo rat occurrence located in the northwest half of the site (see Figure 11D). No Tipton kangaroo rats were captured during the small mammal trapping study for the Project, although kangaroo rat burrows were present along the historic railroad berm located along South Lake Road. No kit foxes or their sign were observed during the species surveys for the Project, and are no historical records report San Joaquin kit fox in the vicinity. No Nelson's antelope squirrels or blunt-nosed leopard lizard were observed during the surveys for the Project, and no CNDDDB records report these species on or in the vicinity of this site. Although there is no evidence to support a determination of presence, the Tipton kangaroo rat, San Joaquin Kit fox, and blunt-nosed leopard lizard could occupy or become established within Site 3-C2.

On-site Occurrence of Other Important Biological Resources

The NWI shows Freshwater Emergent Wetlands described as PEMA and PEMC features present in a north-south orientation through the eastern half of this site (USFWS NWI 2012) (Figure 13). No hydrophilic vegetation was observed during the field survey for the Project. Hydric soils were not present. Widespread tamarisk is present, but the plants are widely scattered and low in stature, likely due to repeated past disturbance by disking. The repeated disking has eliminated any surface evidence of the blue-line drainage shown on the USGS 7.5-minute topographical quadrangle along the northwest boundary of this site (Figure 14). No other wetlands were found on this site during field surveys.

Presence of Sensitive Vegetation Communities and Special Status Species on Adjacent Land

A small patch of Valley Sink Scrub, which is highly degraded through repetitive disking, is present on land adjacent to the east, and chenopod scrub habitat consisting of Valley Saltbush Scrub is present on land adjacent to the northeast (Table 13). No special status plant species were observed. No CNDDDB historical records report special status plant species or sensitive habitat communities on land adjacent to Site 3-C2. The potential exists that special status plant species, including heartscale, Lost Hills crownscale, recurved larkspur, Kern mallow, Hoover's eriastrum, Tejon poppy, San Joaquin woolly threads, and oil neststraw may be present in adjacent native habitat that is present to the north of this area.

3.3.4 SITE 9-C

On-site Presence of Sensitive Vegetation Communities and Special Status Species

The northern portion of this site (APN 220-050-42) is a disked field that does not contain any special status plant species or sensitive natural communities (Table 12). It is a barren field but for an occasional Russian thistle and five-hook bassia plant. The southernmost 83.25-acre portion of the site (APN 200-201-02) contains Valley Saltbush Scrub, a sensitive vegetative community. This portion of the site is dominated and thickly covered by valley saltbush and provides suitable habitat for special status wildlife species. Special status plant species that could potentially occur within this area include heartscale, Lost hills crownscale, Bakersfield smallscale (*Atriplex tularensis*), alkali mariposa lily (*Calochortus striatus*), recurved larkspur, kern mallow, Tejon poppy, hoovers eriastrum, Comanche Point layia (*Layia leucopappa*), and San Joaquin woolly threads. None of these were observed during the field surveys for the Project; however, the

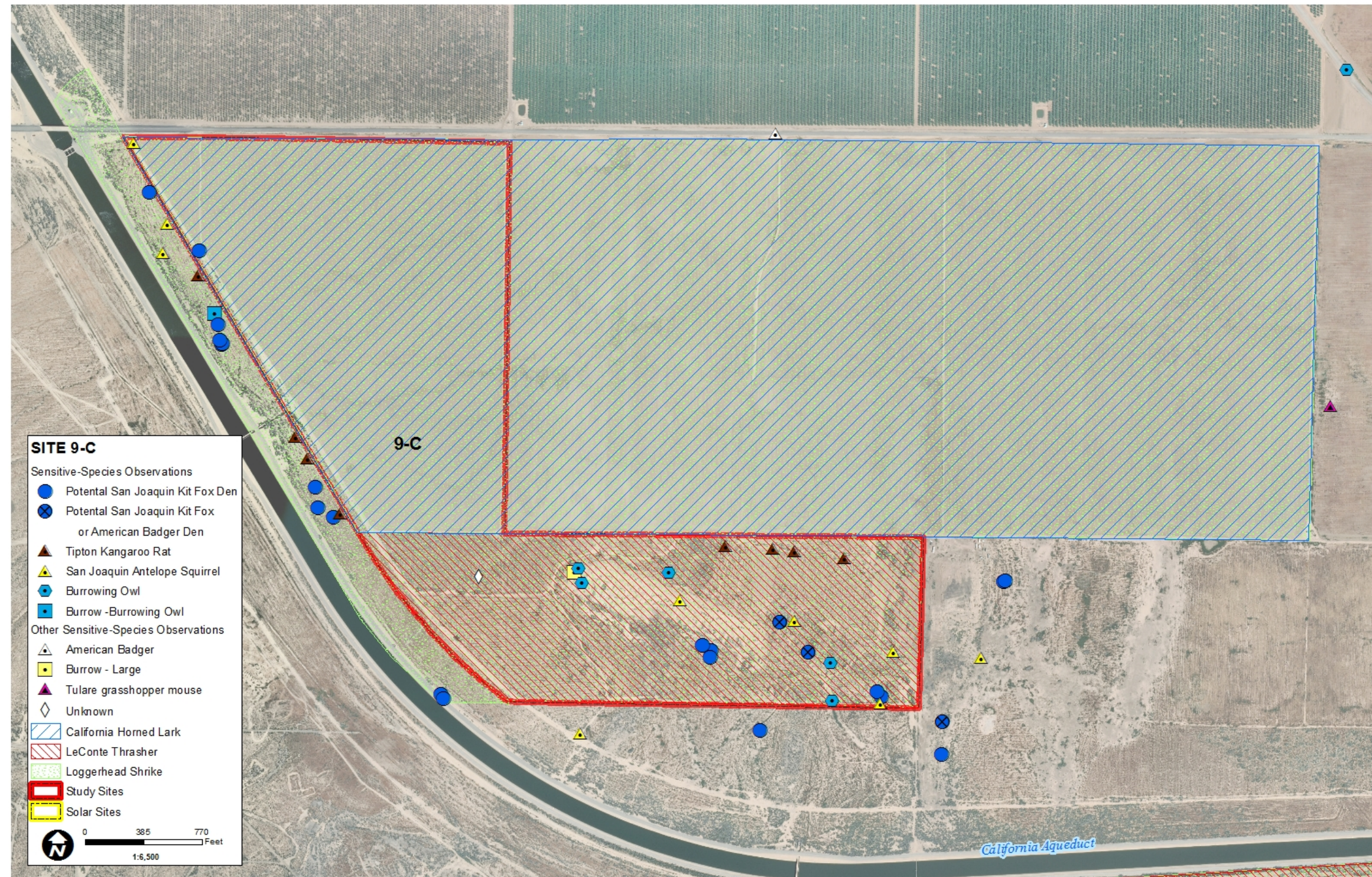
surveys were not conducted during a period when these plants would be identifiable. No CNDDDB historical records report special status plant species or sensitive habitat communities on this site.

The Tipton kangaroo rat, Nelson's antelope squirrel, and western burrowing owl were identified within native habitat on Site 9-C (Figure 18). Extensive small mammal burrows with kangaroo rat sign (tracks, scat, tail drags) were observed in the native habitat present within the 83.25-acre portion of Site 9-C, and small mammal trapping effort confirmed its presence (Figure 18). No CNDDDB historical records report Tipton kangaroo rat on the site. The closest record of the Tipton kangaroo rat is for a location approximately 0.3 miles to the west, on the west side of the California Aqueduct right-of-way (Figure 11D). Nelson's antelope squirrels were observed within the native habitat of this site (Figure 18). CNDDDB historic records report Nelson's antelope squirrel on the southwest corner of this site (Figure 11D). Five western burrowing owls were observed within the native habitat of Site 9-C (Figure 18). No CNDDDB historical records report western burrowing owl within Site 9-C; however, a record of burrowing owl is shown along and south of the site's southern boundary (Figure 11C).

No kit foxes were observed during the kit fox survey; however, several dens of the size and configuration that would qualify as potential kit fox dens were observed. No diagnostic sign of this species was observed on the site. The dens were observed in the native habitat within Site 9-C (Figure 18), but no such dens occur on the disked portions of the site. Tracks of a carnivore were observed within the disked portion of Site 9-C. On the basis of the size and pattern of the tracks, they could have been San Joaquin kit fox; however, the presence of kit foxes was not confirmed during the spotlighting and camera/track station surveys. An historical CSDDDB record of the San Joaquin kit fox overlaps a small part of the western portion of Site 9-C and the area to the west (Figure 11D).

No blunt-nosed leopard lizards were observed during the focused biological surveys for the Project, although a CNDDDB historic record reports this species in the southwest corner of this site (Figure 11B). Suitable habitat to support the San Joaquin kit fox and blunt-nosed leopard lizard exists within the native habitat of Site 9-C, and it is likely that these species occur, though none were observed.

Sightings of other special status species consist of Le Conte's thrasher, loggerhead shrike, and California horned lark (Figure 18). It is possible that Tulare grasshopper mouse, San Joaquin pocket mouse, Blainville's horned lizard, and San Joaquin whipsnake occur within the native shrubland habitat, but none of these species were identified during the focused biological surveys. Several dens of the size and configuration that would qualify as American badger dens were observed, but no diagnostic sign of this species was sighted (Figure 18). Other special status species (e.g., tricolored blackbird, golden eagle, Swainson's hawk, mountain plover, northern harrier, white-tailed kite, prairie falcon, and western mastiff bat) may occasionally overfly the site.



On-site Occurrence of Other Important Biological Resources

No previously identified wetlands are reported on Site 9-C (USFWS NWI 2012) (Figure 13), and no potential waters of the U.S were identified on this site or within 100 feet of its perimeter during the wetland delineation that was conducted. No features that would be under the jurisdiction of the CDFW or the RWQCB were identified. Although the southern portion of this site does support some native habitat, all of the remainder of the area is disked land surrounded by agricultural land uses. The repeated diskings has eliminated all surface evidence of the three blue-line drainages shown on the USGS 7.5-minute topographical quadrangle as traversing the central portion of the site. No remnants of the historical drainages were identified. The nearest water feature to Site 9-C is the California Aqueduct, which is located approximately 280 feet west of the site and curves around to the south of it. A large culvert that channels stormwater runoff from the south across the aqueduct to the north and onto Site 9-C is located approximately 890 feet south of the site. Although the culvert is substantial in size and apparently capable of supporting large flows, the lack of hydrologic indicators suggest that such flows enter the site infrequently.

Presence of Sensitive Vegetation Communities and Special Status Species on Adjacent Land

One sensitive vegetative community, Valley Saltbush Scrub, is present on the land adjacent to the west and south of Site 9-C (Table 13). No special status plant species were observed within this area. No CNDDDB historical records report special status plant species or sensitive habitat communities on Site 9-C. Special status plant species that could potentially be present within this area include heartscale, Lost hills crowscale, Bakersfield smallscale, alkali mariposa lily, recurved larkspur, kern mallow, Tejon poppy, hoovers eriastrum, Comanche Point layia, and San Joaquin woolly threads.

Extensive small mammal burrows with kangaroo rat sign (tracks, scat, tail drags) were scattered throughout the habitat adjacent to the west of Site 9-C. Trapping studies indicate the Tipton kangaroo rat is present in these areas (Figure 18). Nelson's antelope squirrels were found in the native habitat adjacent to the west, south, and east of Site 9-C (Figure 18). No San Joaquin kit foxes were observed during the kit fox survey for the Project; however, several dens of the size and configuration that would qualify as potential kit fox dens were observed. The dens were in the native habitat adjacent to the west, south, and east of Site 9-C (Figure 18). No diagnostic sign of this species was observed. Active burrowing owl burrows were observed in the native habitat adjacent to the west, one of which was occupied by a burrowing owl (Figure 18). No blunt-nosed leopard lizards were observed, but the potential exists for them to be present, because a suitable habitat is present on the land adjacent to the west and south of Site 9-C, and there are extensive historical records of blunt-nosed leopard lizard occurrence in this area.

Sightings of other special status species consist of the Loggerhead shrike which was present in the adjacent native habitat, west of the site; California horned lark, which was observed in disked habitat east of Site 9-C; and Tulare grasshopper mouse, which was captured approximately 0.5 miles east of Site 9-C (Figure 18). A deceased American badger was found north of Site 9-C along the Cadet Road (Figure 18). It is possible that Blainville's horned lizard and San Joaquin whipsnake occur within the native shrubland habitat, but none were observed during the focused biological surveys for the Project. Other special status species (e.g., tricolored blackbird, golden eagle, Swainson's hawk, mountain plover, northern harrier, white-tailed kite, prairie falcon, and western mastiff bat) may occasionally overfly the site.

3.3.5 SITE 10-C

On-site Presence of Sensitive Vegetation Communities and Special Status Species

Site 10-C is completely disked and does not contain any sensitive vegetation communities or special status plant species. The CNDDDB records identified no special status plant species or sensitive habitat communities on the site (Table 12).

Site 10-C has no suitable habitat that would support the Tipton kangaroo rat, Nelson's antelope squirrel, blunt-nosed leopard lizard, or western burrowing owl, and none of these species were observed. The San Joaquin kit fox may occasionally visit the site, but no dens of this species were observed on the site. An historic CNDDDB record reports blunt-nosed leopard lizard immediately west of Site 10-C (Figure 11B), and a record reports burrowing owl at the western boundary of this site (Figure 11C). An historic CNDDDB record reports San Joaquin kit fox along the northern portion of Site 10-C (Figure 11D), along the California Aqueduct. The closest CNDDDB records report the closest Nelson's antelope squirrel approximately 0.6 miles northwest of the site, and the closest Tipton kangaroo rat approximately 1 mile northwest of the site (Figure 11D).

The only special status wildlife species observed on the site was California horned lark (Figure 19). It is reasonable to conclude that most special status species are absent because of the recurring disking.

On-site Occurrence of Other Important Biological Resources

No previously identified wetlands are reported on Site 10-C (USFWS NWI 2012) (Figure 13). Two isolated blue-line drainages are shown on the USGS 7.5-minute topographical quadrangle as traversing the central and western portions of the site, in a north-south orientation (Figure 14); however, any surface sign of these drainages would likely have been removed by recurring disking of the site. No wetlands or potential waters of the U.S. were identified on Site 10-C or within 100 feet of its perimeter.

Presence of Sensitive Vegetation Communities and Special Status Species on Adjacent Land

A sensitive vegetative community, Valley Saltbush Scrub, which is composed of *A. polycarpa* shrubs, is present on land adjacent to the west and approximately 0.45 miles to the south of the site (Table 13). No special status plant species were observed on the adjacent land. No CNDDDB historical records report special status plant species or sensitive habitat communities on Site 10-C. Special status plant species that could potentially be present on this site include heartscale, Lost hills crowscale, Bakersfield smallscale, alkali mariposa lily, recurved larkspur, kern mallow, Tejon poppy, Hoover's eriastrum, Comanche Point layia, and San Joaquin wooly threads.

The Tipton kangaroo rat, Nelson's antelope squirrel, and western burrowing owl were identified within the native habitat adjacent to the north and west sides of Site 10-C (Figure 19). Although it is generally recognized that the Tipton kangaroo rat is absent south or west of the California Aqueduct, this area represents an exception. Within this area near the aqueduct, the Tipton kangaroo rat and the short-nosed kangaroo rat intergrade, and the animals occurring within this small region exhibit characteristics of both subspecies. The CNDDDB, along with many species

experts, consider these animals to be the Tipton kangaroo rat and worthy of protected status under state and federal law. Extensive small mammal burrows with kangaroo rat sign (tracks, scat, tail drags) were scattered throughout the native habitat adjacent to the south and west of Site 10-C, and animals identified as Tipton kangaroo rats were captured within the Valley Saltbush Scrub habitat approximately 550 feet southwest of the site (Figure 19).

Nelson's antelope squirrels were observed along the southern and western boundaries, and within the native habitat located approximately 0.45 miles south of Site 10-C (Figure 19).

Western burrowing owl was observed perched on a fence post located along the northern perimeter of the site (see Figure 19); however, no burrowing owl burrows were found. Active burrowing owl burrows and burrowing owls were observed approximately 0.45 miles south of this site, within the native Chenopod scrub habitat (Figure 19).

San Joaquin kit foxes were not detected during the spotlighting and camera/track station surveys. Several dens of the size and configuration that would qualify as potential kit fox were observed on lands adjacent to the site, but diagnostic sign of this species was not present. The dens were in the native habitat located to the west and north of this site, and in the native habitat located approximately 0.45 miles to the south (Figure 19). San Joaquin kit fox may den and be present within the native habitat on adjacent lands.

No blunt-nosed leopard lizards were observed during the focused biological surveys for the Project, but it is possible that this species may occur within the adjacent native shrubland habitat.

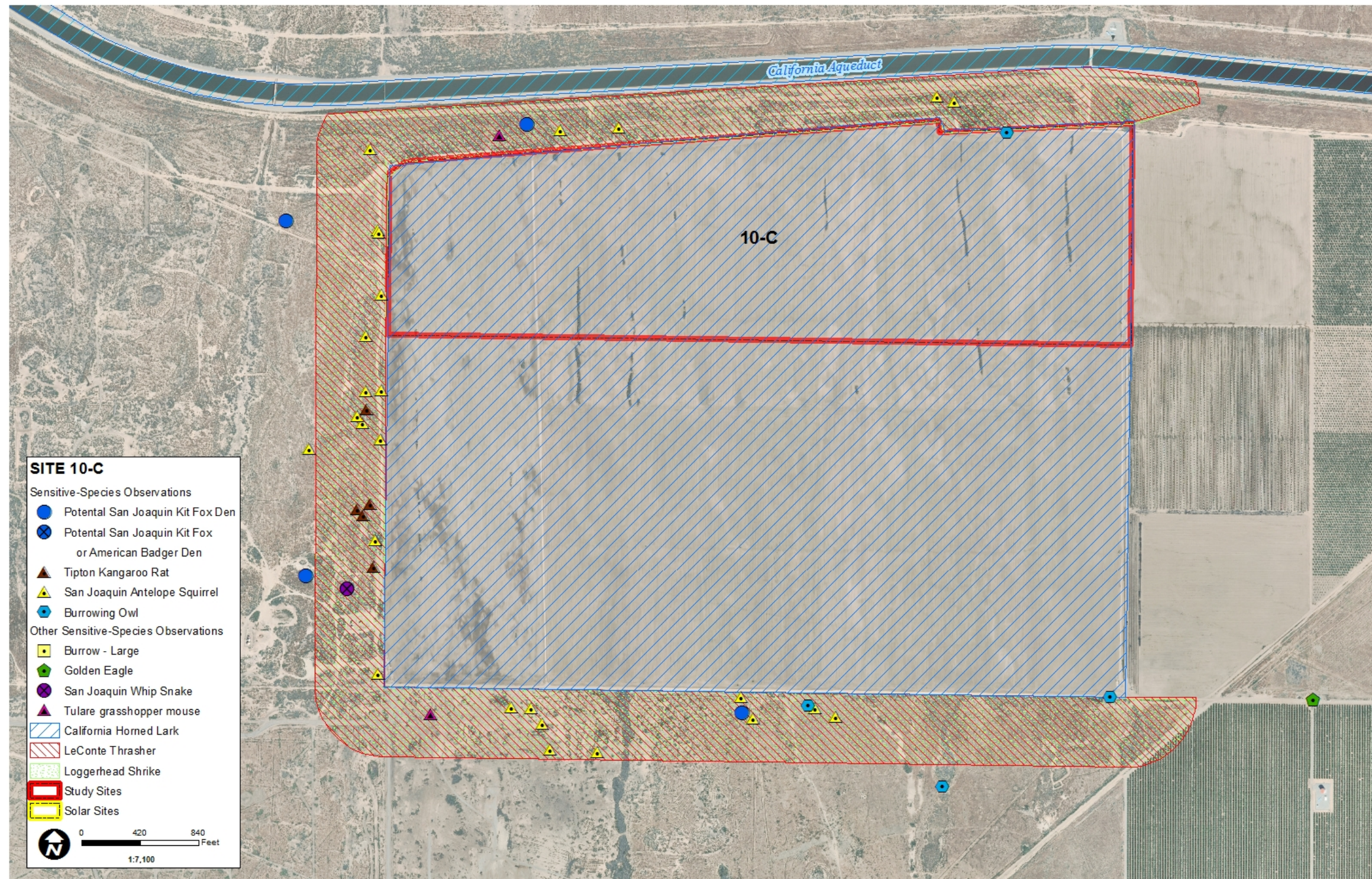
Sightings of other special status wildlife species consist of Tulare grasshopper mice, which were captured in the native habitat adjacent to the north and approximately 0.45 miles south of Site 10-C; San Joaquin whipsnake, which was observed in the native habitat to the southwest of the site; and golden eagle, which was observed to the southeast along the citrus orchard (Figure 19). The sightings of other special status species throughout the native habitat on the adjacent land consisted of loggerhead shrike and Le Conte's thrasher (Figure 19).

3.3.6 SITE 17-C

On-site Presence of Sensitive Vegetation Communities and Special Status Species

Site 17-C is in a relatively natural state, and has never been actively farmed or tilled. Valley Saltbush Scrub, a sensitive habitat community, is present over a large portion of the site (Table 12). One special status plant species, vinegar weed (*Trichostema ovatum*), which is a California Native Plant Society list 1B plant, was observed on this site. Other species special status plant species that could potentially be present include heartscale, Bakersfield smallscale, recurved larkspur, Tejon poppy, Hoover's eriastrum, and San Joaquin woolly threads. The CNDDDB does not identify any records of special status plant species or sensitive habitat communities for this site.

Site 17-C has suitable habitat that would support San Joaquin kit fox, Nelson's antelope squirrel, blunt-nosed leopard lizard, and western burrowing owl, but none of these species were observed during the surveys for the Project. CNDDDB records report no historic occurrence of these species on the site; however, these species are located in the vicinity (Figures 11B, 11C, and 11D). The



southwestern corner of this site is within the area designated as a “core” area for the San Joaquin kit fox by the most recent USFWS five-year status report. Multiple CNDDDB historical records report San Joaquin kit fox to the south and west of this site, with the closest record located approximately 0.5 miles to the south of it (Figure 11D). Suitable habitat that would support San Joaquin kit foxes exists within this site and kit foxes are likely to be present. Additionally, Site 17-C provides a useful corridor for the east-west movements of kit fox.

Two CNDDDB historical records report Nelson’s antelope squirrel; one is for a location 375 feet northeast and the other is for a location 0.6 miles south of this site (Figure 11D). Suitable habitat for this species exists on the site and it is likely that they are present.

Multiple CNDDDB historical records report blunt-nosed leopard lizard to the south and west of this site, with the closest record located 0.3 miles to the south (Figure 11B). The potential exists that blunt-nosed leopard lizard might be present on this site.

CNDDDB historical records report western burrowing owl north and west of this site, but the closest record occurs approximately 0.4 miles to the southwest (Figure 11C). Although no burrowing owls or burrowing owl burrows were observed during the field survey for the Project, this area occurs within the species range, and burrowing owls could be present. Site 17-C is located outside of the known range of the Tipton kangaroo rat. The closest historical record is located approximately 4.5 miles to the northwest of this area (Figure 11D).

The only special status wildlife species observed on Site 17-C was the loggerhead shrike. Burrows of the kangaroo rat, presumably Heermann’s kangaroo rat (*Dipodomys heermanni*), were found throughout this area. It is anticipated that Tulare grasshopper mouse and San Joaquin pocket mouse may be present, since suitable habitat capable of supporting these species is present.

On-site Occurrence of Other Important Biological Resources

No previously identified wetlands are reported on Site 17-C (USFWS NWI 2012) (Figure 13). Four blue-line drainages are shown on the USGS 7.5-minute topographical quadrangle (Figure 14). Two primary washes are within the drainage complex. These washes are sometimes as wide as 15 feet and as deep as 10 feet. Within these washes, there is evidence of severe gully erosion and past flash flooding. No wetland delineation survey was conducted.

Presence of Sensitive Vegetation Communities and Special Status Species on Adjacent Land

No CNDDDB historical records report special status plant species or sensitive habitat communities on lands adjacent to this site (Table 13). Surveys on adjacent areas were not conducted.

San Joaquin kit foxes currently occupy habitat to the west of the area, and to the south of the site is the Windwolves Preserve (Figure 6). CNDDDB historic records report western burrowing owl, Nelson’s antelope squirrel, and blunt-nosed leopard lizards in the vicinity of the site (Figures 11B, 11C, and 11D), and there is suitable habitat to support these species adjacent to the south and west of the site.

Table 12
Occurrence of Sensitive Habitat Communities, Covered Species, and Other Sensitive Species
on Study Sites within the Maricopa Sun Solar Complex Project

Study Site	1-C	3-C	3-C2	9-C	10-C	17-C
Sensitive Habitat Communities on Study Sites						
Valley Saltbush Scrub	X			X*		X
Valley Sink Scrub						
Covered Species Present on Study Sites						
San Joaquin kit fox				S*		X**
Tipton kangaroo rat	X			X*		
Nelson's antelope squirrel				X*		
Blunt-nosed leopard lizard						
Burrowing owl				X*		
Historic Occurrence of Covered Species on Study Sites						
San Joaquin kit fox				X		
Tipton kangaroo rat	X	X	X			
Nelson's antelope squirrel				X		
Blunt-nosed leopard lizard				X		
Burrowing owl			X		X	
Occurrence of Other Sensitive Species on Study Sites						
American badger				S**		
Tulare grasshopper mouse						
California coast horned lizard						
San Joaquin whipsnake						
Northern harrier						
Golden eagle						
Le Conte's thrasher				X*		
Loggerhead shrike				X		
California horned lark				X	X	
X species present	* species present only within the native habitat					
S species sign	** Assumed to be present based upon habitat and nearby records.					

Table 13
Occurrence of Sensitive Habitat Communities, Covered Species, and Other Sensitive Species
on Land Adjacent to Study Sites within the Maricopa Sun Solar Complex Project

Study Site	1-C	3-C	3-C2	9-C	10-C	17-C
Sensitive Habitat Communities on Adjacent Land						
Valley Saltbush Scrub	X	X	X	X	X	
Valley Sink Scrub	X	X	X			
Covered Species Present on Adjacent Land						
San Joaquin kit fox	S			S	S	X**
Tipton kangaroo rat	X	X		X	X	
Nelson's antelope squirrel	X			X	X	X**
Blunt-nosed leopard lizard		X				X**
Burrowing owl	X	X	X	S	X	X**
Historic Occurrence of Covered Species on Adjacent Land						
San Joaquin kit fox	X	X		X	X	X
Tipton kangaroo rat	X	X	X	X	X	
Nelson's antelope squirrel	X			X	X	X
Blunt-nosed leopard lizard	X			X	X	X
Burrowing owl burrow	X	X	X	X	X	X
Other Sensitive Species Present on Adjacent Land						
American badger				X		X**
Tulare grasshopper mouse				X	X	X**
California coast horned lizard		S				
San Joaquin whipsnake					X	
Northern harrier	X	X	X			
Golden eagle					X	
Le Conte's thrasher					X	
Loggerhead shrike	X	X		X	X	
California horned lark				X		
X species present						
S species sign						

** Presence assumed based upon historic records and presence of suitable habitat.

4.0 DISCUSSION

This section discusses the suitability of the proposed study sites as conservation lands for the Covered Species that are addressed in the Maricopa Sun Solar Complex Habitat Conservation Plan. The Covered Species are those that the USFWS or CDFW currently list or may list during the permit period, and which may be subject to “take” as defined by the FESA (Table 14).

Table 14
Species Covered by the Maricopa Sun HCP and ITP

Common Name	Scientific Name	Federal Status	State Status	Other ¹
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE	ST	-
Tipton kangaroo rat	<i>Dipodomys nitratoide nitratoide</i>	FE	SE	-
Nelson’s antelope squirrel	<i>Ammospermophilus nelsoni</i>	-	ST	-
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	FE	SE, FP	-
Burrowing owl	<i>Athene cunicularia</i>	-	CSC	MBTA

4.1 Site 1-C

Site 1-C would provide compensatory mitigation for the San Joaquin kit fox, Tipton kangaroo rat, and western burrowing owl (Table 15).

- **San Joaquin kit fox:** Site 1-C provides 656.6 acres of potential compensatory mitigation for San Joaquin kit foxes. Although this site was not identified to be used by kit foxes as breeding or foraging habitat, it is of the same general quality as the proposed Solar Sites (being disked on a recurring basis), and it is potentially useful as dispersal habitat. Potential kit fox dens were located along the western and northern boundaries of Site 1-C, and a kit fox skull was found along the western boundary (Figure 15). CNDDDB records show that San Joaquin kit foxes occupied the area adjacent to the north of this site (Figure 11D). This species likely uses Site 1-C for movement and foraging, although foraging was not documented and foraging opportunities are limited. With site management actions and site enhancements, Site 1-C will likely provide conservation benefits to San Joaquin kit foxes.
- **Tipton kangaroo rats:** Site 1-C provides 2.44 acres of currently occupied Tipton kangaroo rat habitat. This acreage would provide compensatory mitigation for Tipton kangaroo rats. Tipton kangaroo rats are known to occur within the native habitat along the levee located in the northwest corner of the site (Figure 20). CNDDDB records show that the southernmost portion of this site was once occupied by the Tipton kangaroo rat (Figure 11D), but they are no longer present there. With implementation of site management actions and site enhancements, Site 1-C will likely provide additional conservation benefits for the Tipton kangaroo rat.



- **Western burrowing owl:** Site 1-C provides 656.6 acres of compensatory mitigation for western burrowing owls that is equal in quality to the lands proposed for solar development. Although, this species was not identified on Site 1-C, burrowing owls were observed on other lands with disked habitat (e.g. Solar Site 3-S; Figure 17) providing evidence that disked lands are used by burrowing owls, at least for perching and a limited degree of foraging. Sightings of burrowing owls were recorded in the native habitat adjacent to the west and north of the site, indicating that they are present in the area and could increase their use of the site once disking is halted. CNDDDB records report burrowing owls on the adjacent land, approximately 0.15 mile to the west of Site 1-C (Figure 11C). Habitat enhancements on the site are expected to increase habitat values for western burrowing owls, and the numbers of western burrowing owls and their utilization of Site 1-C will likely increase.
- **Nelson's antelope squirrel:** Site 1-C does not provide compensatory mitigation for this species. Although there is suitable habitat along the levee in the northwest corner, no Nelson's antelope squirrels were observed at this location. Nelson's antelope squirrels were observed near this site, and it is likely that cessation of disking and implementation of enhancements and management of this site will provide habitat for this species in the future.
- **Blunt-nosed leopard lizard:** Site 1-C does not provide compensatory mitigation for this species. Although there is a suitable habitat along the levee in the northwest, no blunt-nosed leopard lizards were identified. With the cessation of disking and implementation of enhancements and management, this site will likely provide habitat for this species in the future.

4.2 Site 3-C

Site 3-C provides compensatory mitigation for San Joaquin kit fox and western burrowing owl (Table 15).

- **San Joaquin kit fox:** Site 3-C provides 80.4 acres of compensatory mitigation for San Joaquin kit foxes. Although this site was not identified to be used by kit foxes as breeding or foraging habitat, it is of the same quality as the proposed Solar Sites and is considered suitable as dispersal habitat. Implementation of management actions and enhancements on the site will increase habitat values for kit foxes over time, and kit fox use of this site will likely increase.
- **Western burrowing owl:** Site 3-C provides 80.4 acres of compensatory mitigation for western burrowing owls. Although, this species was not identified on Site 3-C, burrowing owls were observed to the east within the disked portion of Solar Site 3-S (Figure 17) and in the native habitat located north, west, and southwest of the site. CNDDDB records show burrowing owls located approximately 0.45 miles to the southwest and south of the study site (Figure 11C). Habitat enhancements on this site will increase habitat values for western burrowing owl, and the numbers of burrowing owls and their use of this site will likely increase.

- **Tipton kangaroo rat:** Site 3-C does not provide compensatory mitigation for this species, because the Tipton kangaroo rat does not occur on this site, nor does the site have suitable habitat for it. However, the Tipton kangaroo rat does occur nearby, and it is likely that the cessation of disking, and implementation of enhancements and management of this site will provide habitat for this species in the future.
- **Nelson's antelope squirrel:** Site 3-C does not provide compensatory mitigation for this species, because the Nelson's antelope squirrel does not occur on this site, nor does this site have suitable habitat for it. However, it is likely that the cessation of disking, and implementation of enhancements and management of this site would provide habitat for this species in the future.
- **Blunt-nosed leopard lizard:** Site 3-C does not provide compensatory mitigation for this species, because the blunt-nosed leopard lizard does not occur on this site, nor does this site have suitable habitat for it. However, the blunt-nosed leopard lizard is known to occur nearby, and it is likely that the cessation of disking, and implementation of enhancements and management of this site will provide habitat for this species in the future.

4.3 Site 3-C2

Site 3-C2 will provide compensatory mitigation for San Joaquin kit fox and western burrowing owl (Table 15).

- **San Joaquin kit fox:** Site 3-C2 provides 152.9 acres of compensatory mitigation for San Joaquin kit foxes. Although this site was not identified to be used by kit foxes as breeding or foraging habitat, it is of the same quality as the proposed Solar Sites and is considered suitable as dispersal habitat. Potential denning habitat is present, and kit foxes will likely use Site 3-C2 for movement and foraging, although foraging was not documented. The implementation of management actions and enhancements on the site will increase habitat values for kit foxes over time, and the use of this site by kit foxes will likely increase.
- **Western burrowing owl:** Site 3-C2 provides 152.9 acres of compensatory mitigation for western burrowing owls. The burrowing owl was observed on the site, and to the north of the site within the disked portion of Solar Site 3-S. Burrowing owl were also present in the habitat adjacent to the south of Site 3-C2 (Figure 17). CNDDDB records confirm historical occurrence of western burrowing owl along the eastern boundary and to the east of this site (Figure 11C). Habitat enhancements on this site will increase habitat values for western burrowing owl, and the numbers of burrowing owls and their use of this site will likely increase.
- **Tipton kangaroo rat:** Site 3-C2 does not provide compensatory mitigation for this species. Suitable habitat is present along the levee located along the northwestern boundary, but presence of Tipton kangaroo rats was not confirmed during the small mammal trapping studies. CNDDDB records report Tipton kangaroo rats in this area. Habitat enhancements on this site will increase habitat values for the Tipton kangaroo rat and the potential exist that the species will use this site in the future.

- **Nelson's antelope squirrel:** Site 3-C2 does not provide compensatory mitigation for this species, because the Nelson's antelope squirrel does not occur on this site, and the habitat present is marginal for this species. Habitat enhancements on this site may increase habitat values for the Nelson's antelope squirrel, and the potential exists that the species will use this site in the future.
- **Blunt-nosed leopard lizard:** Site 3-C2 does not provide compensatory mitigation for this species, because the blunt-nosed leopard lizard does not occur on this site. However, the blunt-nosed leopard lizard is known to occur nearby, and the implementation of enhancements and management of this site may increase habitat values for this species in the future.

4.4 Site 9-C

Site 9-C will provide compensatory mitigation for San Joaquin kit fox, Tipton kangaroo rat, Nelson's antelope squirrel, blunt-nosed leopard lizard, and western burrowing owl (Table 15).

- **San Joaquin kit fox:** Site 9-C provides 180.6 acres of compensatory mitigation for San Joaquin kit fox. Although this site was not identified to be used by kit foxes as breeding or foraging habitat, most of it is of the same quality as the proposed Solar Sites and is considered suitable as dispersal habitat. Potential denning habitat is present within the 83.25 acres of native habitat that is present in the southern portion of Site 9-C, and within the habitat adjacent to the west and south. Potential kit fox dens were observed within these areas, and tracks of a carnivore were observed within the disked portion of Site 9-C. On the basis of the size and pattern, the tracks could be San Joaquin kit fox. Site 9-C borders native habitat that occurs along the right-of-way of the California Aqueduct, which provides a viable movement corridor for a wide variety of special status species, including kit foxes. The implementation of management actions and enhancements on the site will increase habitat values for kit foxes over time, and kit fox use of this site will likely increase.
- **Tipton Kangaroo rat:** Site 9-C provides 83.25 acres of compensatory mitigation for Tipton kangaroo rat. Tipton kangaroo rats are known to be present with the native habitat of Site 9-C and in the native habitat adjacent to the west. Although the disked portion of Site 9-C does not currently provide suitable habitat for this species, habitat enhancements on this area will increase habitat values for the Tipton kangaroo rat, increasing the potential for the species to use this area in the future.
- **Nelson's antelope squirrel:** Site 9-C provides 83.25 acres of compensatory mitigation for Nelson's antelope squirrel. Nelson's antelope squirrels are known to be present within the native habitat of Site 9-C, and in the habitat adjacent to the west, south, and east. Although the disked portion of Site 9-C does not currently provide suitable habitat for this species, management and habitat enhancements on this area will increase habitat values for the Nelson's antelope squirrel, increasing the potential for the species to use this area in the future.

- **Western burrowing owl:** Site 9-C provides 180.6 acres of compensatory mitigation for western burrowing owls. Western burrowing owls are known to be present within the 83.25 acres of native habitat of Site 9-C. Western burrowing owls were not identified within the disked portion of Site 9-C, but they were observed on other lands containing disked habitat (e.g., Solar Site 3-S; Figure 17), providing evidence that disked lands are used to some extent by burrowing owls. Therefore, the disked area of Site 9-C provides an additional 103.75 acres of compensatory mitigation that is of equal quality to that habitat occurring on the Solar Sites. The disked portion of Site 9-C is surrounded on two sides by native habitat where Western burrowing owls are known to be present. Burrowing owls will likely increase their use of the disked portion of Site 9-C following management actions and habitat enhancements.
- **Blunt-nosed leopard lizard:** Site 9-C provides 83.25 acres of compensatory mitigation for blunt-nosed leopard lizards. Suitable habitat is present within the native habitat on the southern portion of this site. Extensive historical records report blunt-nosed leopard lizard contiguous with and on the southwest corner of this site (Figure 11B). On the basis of these reports, it is reasonable to assume that blunt-nosed leopard lizard is present on the site, although none were observed during the site surveys. Following habitat enhancements and management, the disked portions of this site may provide additional habitat for this species in the future.

4.5 Site 10-C

Site 10-C provides compensatory mitigation for San Joaquin kit fox and western burrowing owl (Table 15).

- **San Joaquin kit fox:** Site 10-C provides 176.2 acres of compensatory mitigation for San Joaquin kit fox. Although the San Joaquin kit fox was not identified as using Site 10-C as breeding or foraging habitat during the field surveys for the Project, it is of the same quality as the proposed Solar Sites and is considered suitable as dispersal habitat. Potential denning habitat is present within the native habitat adjacent to the north and west, and within the native habitat located approximately 0.45 miles to the south. Potential kit fox dens were observed within these locations. Site 10-C borders native habitat along the right-of-way of the California Aqueduct, which provides a viable movement corridor for a wide variety of special status species, including kit foxes. The implementation of management actions and enhancements on the site will increase habitat values for kit foxes over time, and the use of this site by kit foxes will likely increase.
- **Western burrowing owl:** Site 10-C provides 176.2 acres of compensatory mitigation for western burrowing owls. Western burrowing owls were not identified within this site, but they were observed on other lands with disked habitat (e.g., Solar Site 3-S; Figure 17), providing evidence that disked lands are used to some extent by burrowing owls. Therefore, this site provides compensatory mitigation that is of equal quality to the habitat on the Solar Sites. Burrowing owls were observed in the native habitat north and south of the site, and a CNDDDB historic record reports western burrowing owl west of, and in the western portion of Site 10-C (Figure 11C). The implementation of management actions and enhancements on

the site will increase habitat values for the western burrowing owl over time and the use of this site by the burrowing owl will likely increase.

- **Tipton kangaroo rat:** Site 10-C does not provide compensatory mitigation for the Tipton kangaroo rat, because there is no suitable habitat on the site that would support this species. This species is not present nearby. However, implementation of management actions and enhancements on Site 10-C may result in the Tipton kangaroo rat becoming established on the site in the future.
- **Nelson's antelope squirrel:** Site 10-C does not provide compensatory mitigation for Nelson's antelope squirrel, because there is no suitable habitat on the site that would support this species. The Nelson's antelope squirrel is not present nearby. However, implementation of management actions and enhancements on the site may result in this species becoming established on the site in the future.
- **Blunt-nosed leopard lizard:** Site 10-C does not provide compensatory mitigation for blunt-nosed leopard lizard, because there is no suitable habitat on the site that would support this species. This species does occur nearby. However, implementation of management actions and enhancements on the site may result in the blunt-nosed leopard lizard becoming established on the site in the future.

4.6 Site 17-C

Site 17-C provides compensatory mitigation for the San Joaquin kit fox, western burrowing owl, Nelson's antelope squirrel, and blunt-nosed leopard lizard (Table 15).

- **San Joaquin kit fox:** Site 17-C provides 647.7 acres of compensatory mitigation for San Joaquin kit fox. Although the San Joaquin kit fox was not identified as using Site 17-C, suitable habitat is present that would support the San Joaquin kit fox. Historic records report the species nearby, a portion of Site 17-C is "core" habitat area, and a designated linkage corridor is located south of the site. The San Joaquin kit fox is likely to be present on this site and the site provides a higher value for the San Joaquin kit fox than the dispersal habitat on the proposed Solar Sites. Habitat management on this site may, over time, increase habitat values for San Joaquin kit fox.
- **Western burrowing owl:** Site 17-C provides 647.7 acres of compensatory mitigation for western burrowing owls. Although the western burrowing owl was not identified on the site during preliminary surveys, suitable foraging and breeding habitat is present that would support this species, and burrowing owls are likely to be present. CNDDDB records report western burrowing owl north and west of this site, but the closest record is approximately 0.4 miles southwest of the site (Figure 11C). Habitat management on this site may, over time, increase habitat values for western burrowing owls.
- **Nelson's antelope squirrel:** Site 17-C provides 647.7 acres of compensatory mitigation for the Nelson's antelope squirrel. Although the Nelson's antelope squirrel was not identified on the site, suitable habitat is present that would support this species, and the Nelson's antelope

squirrel is likely to be present. Two CNDDDB historical records report Nelson’s antelope squirrel: one is 375 feet northeast and the other is 0.6 miles south of the site (Figure 11D). Habitat management on this site may, over time, increase habitat values for this species.

- **Blunt-nosed leopard lizard:** Site 17-C provides 647.7 acres of compensatory mitigation for the blunt-nosed leopard lizard. The blunt-nosed leopard lizard was not identified on the site, however, habitat suitable to support this species is present and the site has not undergone disturbances that would have eliminated the leopard lizard; records report this species nearby, and the site is surrounded on two sides by habitat that is suitable to support this species. It is reasonable to conclude that the blunt-nosed leopard lizard is likely to occur on this site. Multiple historical records report blunt-nosed leopard lizard to the south and west, with the closest record located 0.3 miles to the south (see Figure 11B). Habitat management through grazing on this site will maintain habitat values for this species.
- **Tipton kangaroo rat:** Site 17-C does not provide compensatory mitigation for Tipton kangaroo rat. This site is outside of the species range and has no value for this species.

Table 15
Summary of Compensatory Mitigation Acreages for Covered Species on Study Sites,
Maricopa Sun Solar Complex Project

Study Site	1-C	3-C	3-C2	9-C	10-C	17-C	Total
Compensatory Mitigation (acres)							
San Joaquin kit fox	656.6	80.4	152.9	180.6	176.2	647.7	1,894.4
Tipton kangaroo rat	2.44	0	0	83.25	0	0	85.69
Nelson’s antelope squirrel	0	0	0	83.25	0	647.7	730.95
Blunt-nosed leopard lizard	0	0	0	83.25	0	647.7	730.95
Western burrowing owl	656.6	80.4	152.9	180.6	176.2	647.7	1,894.4

5.0 CONCLUSION

The proposed conservation sites provide conservation benefits for all of the Maricopa Sun Solar Project’s Covered Species; i.e., the San Joaquin kit fox, Tipton kangaroo rat, Nelson’s antelope squirrel, blunt-nosed leopard lizard, and western burrowing owl. These sites currently provide habitat that is equal or higher in quality than the habitat on the proposed Solar Sites. These sites provide 1,894.4 acres of San Joaquin kit fox habitat, 85.69 acres of Tipton kangaroo rat habitat, 730.95 acres of Nelson’s antelope squirrel habitat, 730.95 acres of blunt-nosed leopard lizard habitat, and 1,894.4 acres of western burrowing owl habitat.

The compensatory mitigation acreage provided by these lands exceeds the acreage needed for some species, but does not meet the compensatory requirements for other species. The solar projects will not be built on lands that are occupied by the blunt-nosed leopard lizard, Nelson’s

antelope squirrel, or Tipton kangaroo rat; therefore, no compensatory mitigation lands are needed for these species.

The conservation of 730.95 acres of blunt-nosed leopard lizard habitat, 85.69 acres of Tipton kangaroo rat habitat, and 730.95 acres of Nelson's antelope squirrel habitat exceeds the acreage needed. The 1,894.4 acres of San Joaquin kit fox and western burrowing owl habitat that would be provided by the conservation of these sites do not meet the compensatory mitigation needs for these species, even though much of the lands proposed for mitigation exceed the quality of the habitat that would be lost to solar development. However, additional project mitigation will be provided, including establishment of managed movement corridors among the Solar Sites, and permanent conservation of all Solar Site lands once the solar project is decommissioned. In combination, these would meet the conservation needs of the project.

Many of the proposed conservation sites are currently disked. The cessation of disking, habitat enhancements, and active management of these sites are likely to improve the habitat value of these sites over time, leading to increased conservation benefits. Although the actual benefits that might be realized are untested and unknown, the potential exists for these sites to be of greater conservation value than is currently available.

A long-term monitoring program is an integral component of the Maricopa Sun Solar Project. The monitoring program will drive the implementation of management actions through an adaptive management evaluation process, and provide continuing information on the recovery of these conservation lands and the value of the lands in providing habitat for the Covered Species. This continuous monitoring will provide assurances that the conservation objectives and goals will be met throughout the life of the Project.

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**SAN JOAQUIN KIT FOX
(*VULPES MACROTIS MUTICA*) DISPERSAL STUDY**

**MARICOPA SUN SOLAR PROJECT,
KERN COUNTY, CALIFORNIA**

April 2012



Quad Knopf

SAN JOAQUIN KIT FOX (*VULPES MACROTIS MUTICA*) DISPERSAL STUDY

Maricopa Sun Solar Project, Kern County, California

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EXECUTIVE SUMMARY

The San Joaquin kit fox (*Vulpes macrotis mutica*) is endemic to the San Joaquin Valley, and historically ranged over much of the San Joaquin Valley floor and surrounding foothills and in the Carrizo Plain. The continued conversion of habitat from native Saltbush Scrub, Alkali Sink, and grasslands continues to put this species at risk of extinction. The United States Fish and Wildlife Service listed the San Joaquin kit fox as endangered in 1967 (USFWS 1967) and the State of California listed the fox as threatened in 1971.

The Maricopa Sun Solar project is situated on nine project sites encompassing approximately 6,000 acres in the southern San Joaquin Valley, approximately 5 miles southeast of Taft, Kern County. The project is broadly defined as the construction, operation and decommissioning of PV power generating facilities on approximately 5,853.45± acres. Although the project sites are repeatedly disked for weed control and to maintain the lands in a farm-ready state, the sites may provide some benefit to the San Joaquin kit fox. Extensive biological surveys of the project sites failed to show that the sites are used as breeding or foraging habitat (Quad Knopf 2010), but the sites might be used for dispersal. This study provides an evaluation of the potential for San Joaquin kit foxes to disperse through the project area and the potential value of the Maricopa Sun Solar project sites to the San Joaquin kit fox.

A large block of habitat borders the west and north sides of the westernmost project site (Site 1) that supports many special status species including the San Joaquin kit fox. This habitat block supports the West Kern core population of the San Joaquin kit fox and forms a nearly complete connection to the Bakersfield urban satellite population of kit fox. This connection is located north of the Maricopa Sun Solar project. A secondary corridor linkage between these two populations exists to the south of the project, along the foothills of the Transverse Range then north along the foothills of the Tehachapi Mountains to Bakersfield. The project is located within a large area of intensively farmed agriculture. This agricultural area is devoid of potential kit fox habitat, except for a few, small, isolated remnant patches. Most are not of a sufficient size to support a viable kit fox population. Numerous barriers to kit fox movements occur within this area and the intensive agricultural developments are not conducive to kit fox habitation or movements. Development of the Maricopa Sun project will not affect regional connectivity of kit fox populations, interfere with established or perceived linkage corridors, or affect the potential recovery of the San Joaquin kit fox.

There is a small, isolated, remnant patch of habitat to the east of the project sites that is known to support a small, isolated population of kit fox. The project lies between this site and the West Kern core population of kit foxes to the west. There is no habitat corridor or conduit corridor through this area, but there is a tenuous and unreliable connection between these two populations through the project sites. Measures are included in the project that may encourage the use of the sites by resident kit foxes and contribute to this connection. Development of the project will not affect the local dispersal of kit foxes.

INTRODUCTION

The San Joaquin kit fox (*Vulpes macrotis mutica*) is endemic to the San Joaquin Valley, and historically ranged over much of the San Joaquin Valley floor and surrounding foothills, from southern Kern County north to Tracy, San Joaquin County on the west side of the valley, and near LaGrange, Stanislaus County, on the east side of the valley. The species also occurs in the Carrizo and Elkhorn Plains, San Luis Obispo County, and in the Salinas River watershed, San Benito and Monterey counties. Extensive habitat losses within the San Joaquin Valley from intensive agricultural production, oilfield development, urbanization, and infrastructure development (roads, canals, pipelines) led to the listing of the San Joaquin kit fox as a federally and State endangered species. The continued conversion of habitat from native Saltbush Scrub, Alkali Sink, and grasslands continues to put this species at risk of extinction.

The United States Fish and Wildlife Service listed the San Joaquin kit fox as endangered in 1967 (USFWS 1967) and the State of California listed the fox as threatened in 1971. A Recovery Plan was approved in 1983 (USFWS 1983), and an updated Recovery Plan that covered 34 upland species in the San Joaquin Valley was approved in 1998 (USFWS 1998). The 1998 Recovery Plan identified the San Joaquin kit fox as an umbrella species; recovery actions for the San Joaquin kit fox are critical to the recovery of many other listed species because the kit fox occurs in the same natural communities and requires relatively large areas of natural habitat, thus providing an umbrella of protection for other species that require smaller habitat blocks.

To meet the provisions of various laws and regulations (e.g., National Environmental Policy Act, Federal Endangered Species Act, California Environmental Quality Act, California Endangered Species Act), projects which occur within the range of the San Joaquin kit fox, which are within habitat potentially occupied by the San Joaquin kit fox, and which may adversely affect the San Joaquin kit fox must be fully analyzed to quantify any adverse effects. The Maricopa Sun Solar project is situated on approximately 6,000 acres in the southern San Joaquin Valley, approximately 5 miles southeast of Taft, Kern County. Although the project sites are repeatedly disked for weed control and to maintain the lands in a farm-ready state, the sites may provide some benefit to the kit fox. Extensive biological surveys of the project sites failed to show that the sites are used as breeding or foraging habitat (Quad Knopf 2010).

This study provides an evaluation of the potential for San Joaquin kit foxes to disperse through the project area and the potential value of the Maricopa Sun Solar project sites to the San Joaquin kit fox. Regional background information on known San Joaquin kit fox “core” populations, “satellite” populations, and important linkages and corridors for movement that connect these populations are provided. The linkages and corridors may or may not provide actual linkages, but the maintenance or the creation of those linkages is thought to be essential to the recovery of the fox. The information on populations and linkages were obtained from the Recovery Plan (USFWS 1998) and from the most current five-year status review of the San Joaquin kit fox (USFWS 2010). Information is also provided on the local occurrences and locations of nearby habitat patches that are important for the San Joaquin kit fox. With the knowledge of that existing information, the function and value of the Maricopa Sun project sites to provide opportunities for dispersal and the effects of the project on the ultimate recovery of the species are evaluated in two ways.

First, a regional perspective is employed. The project sites are evaluated for their potential to contribute to regional connections between core populations, satellite populations, and established linkages and corridors. In other words, would development of the project interfere with the regional movements of the fox or hinder the recovery of the fox on a regional basis by reducing dispersal or connectivity among the kit fox metapopulation? Second, the project is evaluated for its effects on the dispersal of kit fox at a local level. In other words, will development of the project effect dispersal of foxes living among local populations?

The contents of this report are organized as follows:

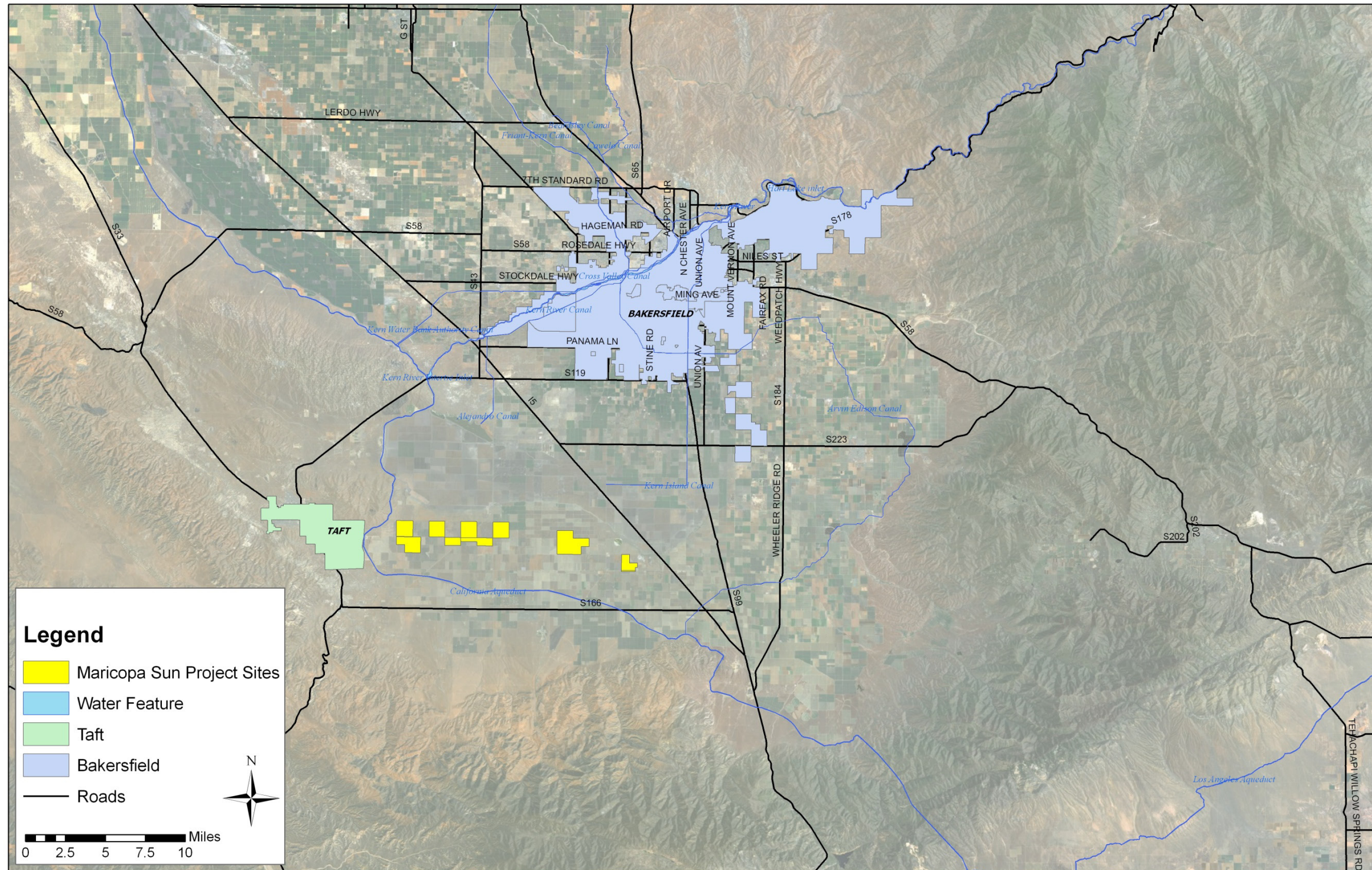
- Project description and biological setting,
- Relevant aspects of the natural history of the San Joaquin kit fox (e.g., home range and demographics, dispersal patterns, use of agricultural environments),
- Functions and values of dispersal corridors,
- Project effects on the regional dispersal of kit fox,
- Project effects on the local dispersal of kit fox, and
- Conclusions

The proposed mitigation to compensate for project effects is presented in a separate document.

PROJECT DESCRIPTION AND BIOLOGICAL SETTING

Project Description

The project is broadly defined as the construction, operation and decommissioning of PV power generating facilities on approximately 5,853.45± acres. The project is located in the southwest portion of unincorporated Kern County (Figure 1). Complete buildout of the Maricopa Sun Solar Complex would produce approximately 700 megawatts (MW) of electricity. Construction of solar facilities on all solar sites is anticipated over an 8 to 10 year period from the commencement of the initial development; however, unknown constraints could extend the development phase to a 10 to 15 year period. It is anticipated that construction of each section (640 acres) within the Maricopa Sun Solar Complex will take 12 to 18 months, dependent upon weather, labor and equipment availability, and time of year. There is a high potential for multiple solar developers to be installing solar facilities at various sites simultaneously.



MARICOPA SUN SOLAR PROJECT, KERN COUNTY, CALIFORNIA

Figure
1

There are a variety of activities that must occur to prepare the sites for construction. Site preparation may consist of the removal of vegetation, minimal site grading, and compaction of soils. No soils shall be exported from the sites. Installation of parking areas and staging and laydown areas for construction materials shall be located inside of the permitted solar field area. Temporary staging areas will be used to position construction management crews, to receive shipments, and inspect and store parts and materials for the solar facilities. Vehicle tire grates, straw bales, and silt fencing will be installed as necessary prior to construction. Construction access roadbeds will typically be 20 to 30 feet wide and consist of compacted earth surfaced with gravel or compacted soil. A stabilized entrance/exit will be provided to clean vehicle wheels prior to exiting construction areas.

Construction of the project will occur in a series of approximately 1-MW blocks, consisting of approximately 5 to 8.64 acres each (depending on technology). Project construction will require the following temporary facilities on site: assembly areas, access roads, parking areas, and staging and lay-down areas. Construction materials will consist of: concrete, pipe, wire and cable, fuels, reinforcing steel, and small tools and consumables. Concrete pads for the drive motors will be poured using a temporary concrete batch plant on site, and electrical equipment for the array will be set in place, usually within trenches.

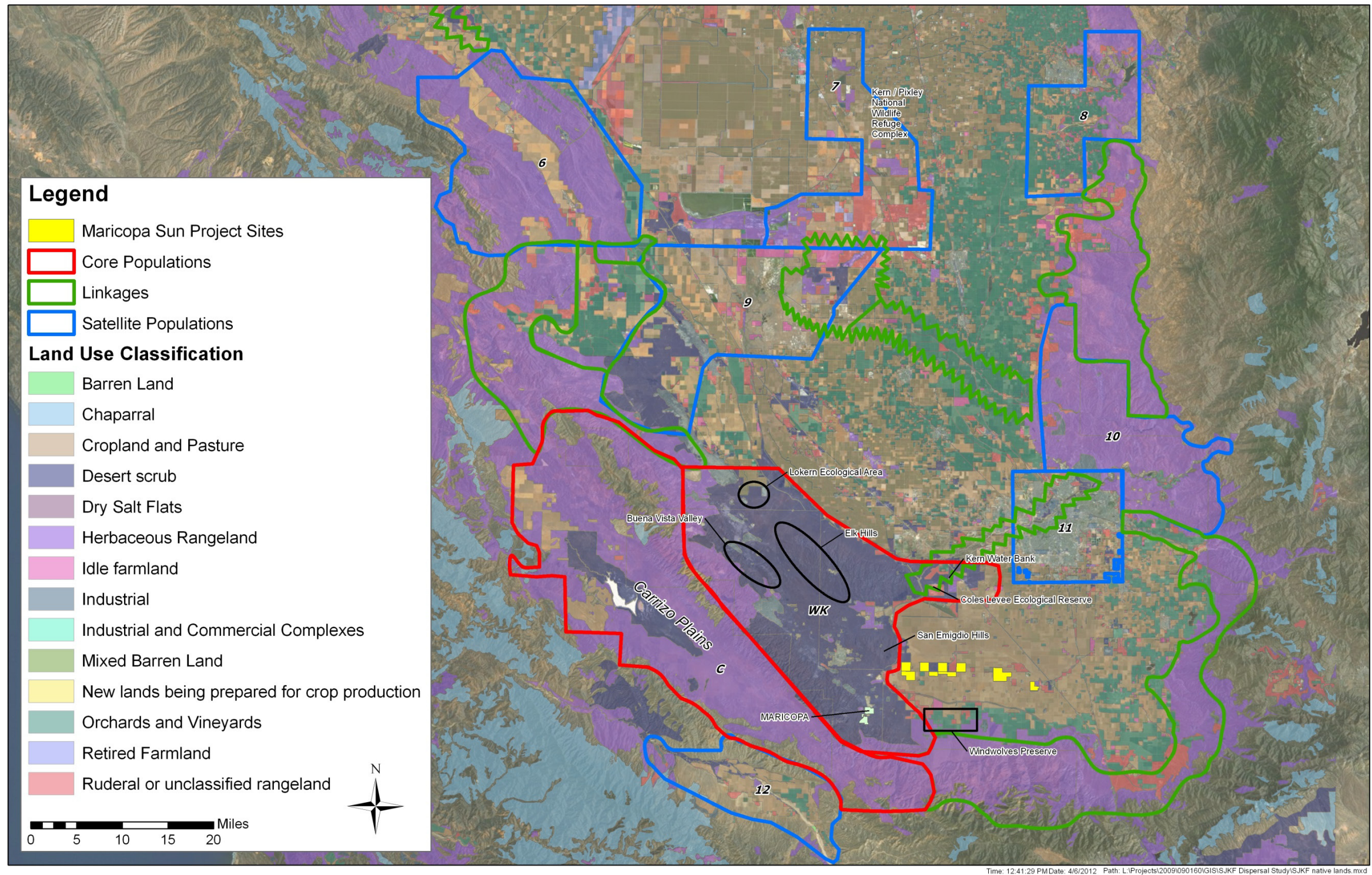
Operational activities are limited to monitoring facility performance, responding to utility needs for facility adjustment; routine cleaning, repairs, and replacement of the solar panels; and on-site security. The on-site O&M buildings will house a minimum of five full-time employees that will perform operational tasks, maintenance tasks, and provide security. Additional personnel may be hired as needed for module cleaning. Security and some maintenance staff may be present on-site on a 24- hour basis. The primary water use during project operation will be for washing of the solar panels, with a minor amount of water use for sanitary requirements. It is presently expected that approximately one gallon would be required for washing each panel. The washing frequency may vary depending upon weather conditions, but it is estimated that the panels will be washed twice per year. At times it may also be necessary to reduce dust emissions by spraying water from a water truck.

The solar operator anticipates a secondary market for PV modules to develop over time. While energy output may diminish, PV modules are expected to continue to have a productive life and can be decommissioned from a prime location or recommissioned in another location. Such a prime location and its infrastructure (racking materials, electrical conduits and wiring, switch yards, inverter pad, etc.) can then be re-used to adopt the latest, most efficient solar energy technologies. Typical activities during solar energy facility decommissioning and site reclamation include removal of all solar electric systems, buildings, cabling, electrical components, breaking up of concrete pads and foundations, and removal of access roads that are not maintained for other uses. The solar facilities will be entirely removed with little impact to the underlying land and the solar sites will be placed in a conservation easement for the benefit of the San Joaquin kit fox and other special status species.

Biological Setting

The project region once supported a wide variety of plant and wildlife species, but much of the diversity and abundance has been reduced and species composition has been altered by dramatic changes in land use. Much of the Valley floor has been converted to agricultural production, but there are still isolated remnants of fallowed lands and disturbed natural lands occurring on the valley floor. Many of these isolated parcels support populations of special status species, but they are susceptible to local extinction from stochastic events, their persistence is tenuous, and their long-term viability is questionable. The ability of species to disperse among these isolated parcels is important for maintaining genetic diversity, allowing for recolonization following local extirpations, and contributing to their long-term persistence. The Maricopa Sun Solar project sites are situated within a matrix of agricultural lands composed of orchards, vineyards, and row crops, and isolated remnants of fallowed and native lands. The native lands occurring in the vicinity of the Maricopa Sun project are composed of Saltbush Scrub or Alkali Sink habitats.

A large block of habitat borders the west and north sides of the westernmost project site (Site 1) that supports many special status species. That habitat block consists of a matrix of Saltbush Scrub and grassland habitats, and extends to the west over the Temblor range into the Carrizo Plain (Figure 2). It extends south to the town of Maricopa, connecting with the Windwolves Preserve. The habitat block extends to the north over the San Emigdio Hills, connecting to Elk Hills, Buena Vista Valley, Coles Levee Ecological Reserve, Tupman Hills, Lokern Ecological Area, and the Kern Water Bank. The habitat block extends to the north along the temblor range to connect with the Kettleman Hills in Kings County, Kreyenhagen Hills in Fresno County, and farther north. This large habitat block supports one of the largest and most important remaining core populations of the San Joaquin kit fox.



Relevant Aspects of San Joaquin Kit Fox Natural History

The San Joaquin Kit fox is an arid-land-adapted species that typically occurs in desert-like habitats composed of sparse or absent shrub cover, sparse ground cover, and short vegetative structure. The kit fox is generally associated with areas of open, level, sandy ground (Grinnell *et al.* 1937) that is relatively stone-free. Kit fox are absent or scarce in areas where soils are shallow due to high water tables, impenetrable hardpans, or proximity to parent material, such as bedrock (Jensen 1972; Morrell 1972, O'Farrell and Gilbertson 1979, O'Farrell *et al.* 1980). The kit fox does not den in saturated soils or in areas subjected to periodic flooding. Habitat with slopes of less than 5 percent is optimal for the kit fox, while habitat with slopes of 5 to 15 percent is suitable and habitat having slopes of greater than 15 percent is unsuitable (Cypher 2006).

The San Joaquin kit fox is primarily nocturnal and subsist primarily on kangaroo rats (*Dipodomys* spp.), but it also preys on white-footed mice and pocket mice (*Peromyscus* spp.), California ground squirrels (*Spermophilus beecheyi*), rabbits (*Sylvilagus* spp.) and hares (*Lepus* spp.), San Joaquin antelope squirrels (*Ammospermophilus nelsoni*), and ground-nesting birds (Scrivner *et al.* 1987). Kit fox populations appear to be most robust where kangaroo rats persist (Cypher *et al.* 2000). The kit fox diet varies geographically, seasonally, and annually. Population abundance of kit fox responds to lower prey abundance by declining, although there generally is a lag-time of one or more years before kit fox declines occur (Cypher *et al.* 2000).

Most female kit fox do not reproduce until 2 years of age although some yearling may produce young (Spencer *et al.* 1992; Spiegel and Tom 1996; Cypher *et al.* 2000). The young are born in natal dens that typically have multiple openings. Young generally disperse in August or September when four or five months old. Reproductive success appears to be correlated with prey abundance (Egoscue 1975) and may be negatively affected by weather conditions that are either too wet or too dry.

Kit fox establish extensive home ranges, but home range sizes vary among locations. Home range size is thought to be related to prey abundance (White and Ralls 1993; White and Garrett 1999). At Elk Hills, Cypher *et al.* (2001) determined the mean adult home range size was 1,071.7 acres, while the mean home range for pups was 525.4 acres. Kit fox on the Carrizo Plains establish home range sizes estimated to average approximately 2,866 acres in size (White and Ralls 1993). In western Merced County, Briden *et al.* (1992) found that denning ranges (the area encompassing all known dens for an individual) average 1,169 acres. At Camp Roberts Army National Guard Training Site, the average home range was found to be 5,782 acres (Root and Eliason 2001).

Reproductive success and average litter size differ between populations and vary with environmental conditions. At Elk Hills, reproductive success of adult females averaged 61 percent, with variation between 20 and 100 percent (Cypher *et al.* 2000). Similar variation in reproductive success has been found at other study sites (Standley *et al.* 1992; Ralls and White 1995; Spiegel and Tom 1996). Average litter size differed by area and ranged from 2.0 pups at the Carrizo Plains to 3.8 pups at Elk Hills (Standley *et al.* 1992; Ralls and White 1995; Spiegel and Tom 1996; Cypher *et al.* 2000).

Predation is a significant cause of kit fox mortality and has strong effects on the demography and ecology of kit fox, at least locally (Cypher and Scrivner 1992). The percentage of mortality due to interactions with predators, primarily coyotes, ranged between 57 percent and 89 percent in the southern San Joaquin Valley (Cypher and Scrivner 1992; Standley *et al.* 1992; Ralls and White 1995; Spiegel and Disney 1996; Spiegel *et al.* 1996; Cypher and Spencer 1998; Cypher *et al.* 2000; Nelson *et al.* 2007). In some locations coyotes only infrequently consume the kit fox they kill, suggesting that coyote attacks are competitive interactions rather than a predator-prey interaction (Cypher and Spencer 1998; Cypher *et al.* 2000; Nelson *et al.* 2007). Kit fox predators also include dogs (*Canis familiaris*), non-native red fox (*Vulpes vulpes*), badgers (*Taxidea taxus*), and golden eagles (*Aquila chrysaetos*) (Briden *et al.* 1992; Cypher *et al.* 2000).

The diets selected by coyotes and kit fox often overlap (Cypher and Spencer 1998; Cypher *et al.* 2001), but they consume prey in different proportions. Shrublands hold higher biomass of prey species than grasslands for both coyotes and kit fox, suggesting that the kit fox may be displaced from shrublands into grassland habitats by coyotes, with diet overlap occurring at an increased mortality cost for the kit fox (Nelson *et al.* 2007). Resource competition may not be significant in all areas or all years (Cypher *et al.* 2001), but may be high when prey resources are scarce (Cypher and Spencer 1998). In some areas, the two species may partition resources adequately to coexist, even with high predation by coyotes (Nelson *et al.* 2007). However, coyote predation on kit fox may reduce population increases of kit fox and accentuate population declines (Cypher and Spencer 1998).

The average dispersal distance of pups has been estimated at 5 miles (\pm 0.9 miles) at Elk Hills (Scrivner *et al.* 1987), but maximum dispersal distances can vary substantially (Hall 1983). One pup crossed the Temblor Range from Elk Hills into the Carrizo Plains (Scrivner *et al.* 1987), a distance of at least 12 miles. One individual traveled up to 25 miles from its whelping den (V. Getz Pers Comm, *In* USFWS 1998) and an adult male dispersed from Camp Roberts to the Carrizo Plain in 1989 (P.J. White Pers Comm, *In* USFWS 1998). Adult and juvenile kit foxes are known to disperse through disturbed habitats including oil fields, agricultural fields, rangelands, and across highways and aqueducts (USFWS 1998).

Although kit foxes are known to disperse through agricultural fields, intensively farmed lands do not provide suitable habitat for the kit fox for a variety of reasons and kit fox are unable to occupy farmland on a long-term basis. Lands producing row crops are subjected to weekly inundation during irrigation, which impedes kit fox foraging and precludes the establishment, maintenance, and use, of earthen dens (Warrick *et al.* 2007). Prey abundance is relatively low in row crops, prey diversity is reduced, prey species composition changes, and favored prey species such as kangaroo rats disappear (Williams and Germano 1992; Clark 2001; Cypher 2006; Warrick *et al.* 2007). Although kit fox may enter the margins of row crops and may venture into orchards at night from natural lands, there is no evidence that kit fox are able to use farmland, even when it was the predominant available habitat (Warrick *et al.* 2007). It appears that kit fox are permanently displaced from areas where the land is intensively irrigated (Jensen 1972; Morrell 1975; Warrick *et al.* 2007).

Several additional factors reduce suitability of agricultural lands for kit fox. Agricultural lands are used more frequently (in comparison to natural lands) by red fox, coyote, and dogs, which compete with or kill kit fox (Cypher *et al.* 2001; Clark *et al.* 2005; Cypher *et al.* 2005a), potentially making such agricultural lands a mortality sink for the kit fox. Pesticide applications may be harmful to kit fox, while ground squirrel eradication efforts reduce prey availability and may indirectly harm kit fox (USFWS 1993; USEPA 1995; Hosea 2000).

Kit fox movement between parcels of native land may be impeded by the structure of some annual croplands, such as cotton, which forms a dense thicket up to 3 feet tall (Warrick *et al.* 2007). Although there is some evidence that kit fox will use artificial dens placed within agricultural lands, work to date has not demonstrated that kit fox use the artificial dens to cross agricultural lands, even where such lands form a relatively narrow strip between areas of natural habitat (Cypher *et al.* 2005a). Because kit fox exhibit only limited capacity to utilize agricultural lands, agricultural lands also appear to constitute effective barriers to kit fox movements (Cypher *et al.* 2005a).

Orchards and vineyards may provide some habitat value for the kit fox because their open structure and underlying layer of vegetation can support a prey base, but food items are not generally abundant and consist primarily of murid (old world) rodents, in at least some locations (Clark 2001; Warrick *et al.* 2007). Ground squirrels and pocket gophers, which are potential kit fox prey, may be actively poisoned in agricultural areas (Heintz 2000). These factors suggest that kit fox may not have an appropriate prey base for adequate sustenance. Documented use of this habitat by kit fox appears to vary (Clark *et al.* 2005; Warrick *et al.* 2007) and its suitability in supporting kit fox appears limited.

The total of this information demonstrate that kit fox:

- have large home ranges with sizes dependant on local habitat and prey conditions,
- have highly variable survival rates, depending on the population and environmental conditions,
- depend primarily on native prey species
- experience population fluctuations in response to prey levels
- sustain high mortality rates due to coyote predation/competition,
- generally do not occur in rugged terrain or in intensively farmed areas, and
- are reliant on dispersal from population strongholds into suitable habitat in order to sustain subpopulations throughout their range.

Functions and Values of Corridors and Linkages

To determine the effects of the Maricopa Sun solar project on the regional and local dispersal of the San Joaquin kit fox, it is necessary to understand the uses of corridors and the value that corridors provide. Corridors have become an increasingly important concept in conservation biology, and have been shown to have considerable value to some species and populations. There has been substantial debate over the value of corridors, how they should be implemented, and even how they should be defined. A functional approach to corridor design evaluates a

corridor in the context of both how it facilitates animal movement and the role that movement plays in the population biology of the species. Functional definitions of corridors are widely used in the application of metapopulation biology, island biogeography, and game management. Structural definitions of corridors arose in the field of landscape ecology, and focus on the existence of a linear strip of habitat within a “matrix-patch-corridor”, with no explicit consideration of the function of that strip of habitat on the population biology of the species. The functional definition of a corridor is the appropriate definition to apply when analyzing the potential affect of the Maricopa Sun Project on the kit fox.

There are multiple functions that a corridor can perform, and identifying which functions any particular corridor provides is crucial (Hess and Fischer 2001). Distinguishing whether a corridor serves as a habitat corridor or a conduit corridor is fundamental to defining a corridor’s function and analyzing impacts to corridor function (Lindenmayer and Nix 1993, Hess and Fischer 2001). Habitat and conduit corridors are defined as follows (Rosenberg et al. 1995, as described in Hess and Fischer 2001):

[A] corridor that provides for movement between habitat patches, but not necessarily reproduction, is performing a conduit function. If a corridor provides resources needed for survivorship, reproduction, and movement, it is performing a habitat function.”

In other words, if an animal’s movement is small relative to the width and length of a corridor, it may take several generations for a species to move through the corridor; such species are called “corridor dwellers,” and the habitat within such a corridor would have to perform a “habitat” function and provide resources for reproduction (Beier and Loe 1992). Habitat corridors must contain habitat of sufficient quality and quantity to allow for reproduction. Alternatively, if the length of a corridor is traversable for an animal engaging in dispersal, seasonal migration, daily foraging, exploration, or finding a mate, then that species would qualify as a “passage species” with respect to that corridor. In such a situation, the corridor would perform a “conduit” function.

Metapopulation studies that include an evaluation of the benefits of corridors to the abundance and persistence of a population rarely consider the quality of the habitat within the linkage (Henein and Merriam 1990). Likewise, the quality of the habitat within a corridor is not always considered to the degree to which it is warranted (Noss 1987, Henein and Merriam 1990, Hess and Fischer 2001). Corridor quality can be defined by the survival rate of the animals passing through that corridor. High quality corridors have high survival rates for the animals that use them, and low quality corridors have low survival rates for the animals that enter them (Henein and Merriam 1990). The corridor quality model developed by Henein and Merriam (1990) indicates that metapopulations with exclusively high-quality corridors have a larger population size than those with one or more low quality corridors, but that the size of the metapopulation declines as the number of low quality corridors increase.

Connecting corridors must provide ecological services sufficient to enable the target species to survive in that space for at least a portion of their life. Types of habitat, terrain, and presence and extent of barriers affect the permeability of corridors. Anthropogenic features including high density roads, urbanized areas, and large expanses of agriculture may be impassable barriers to

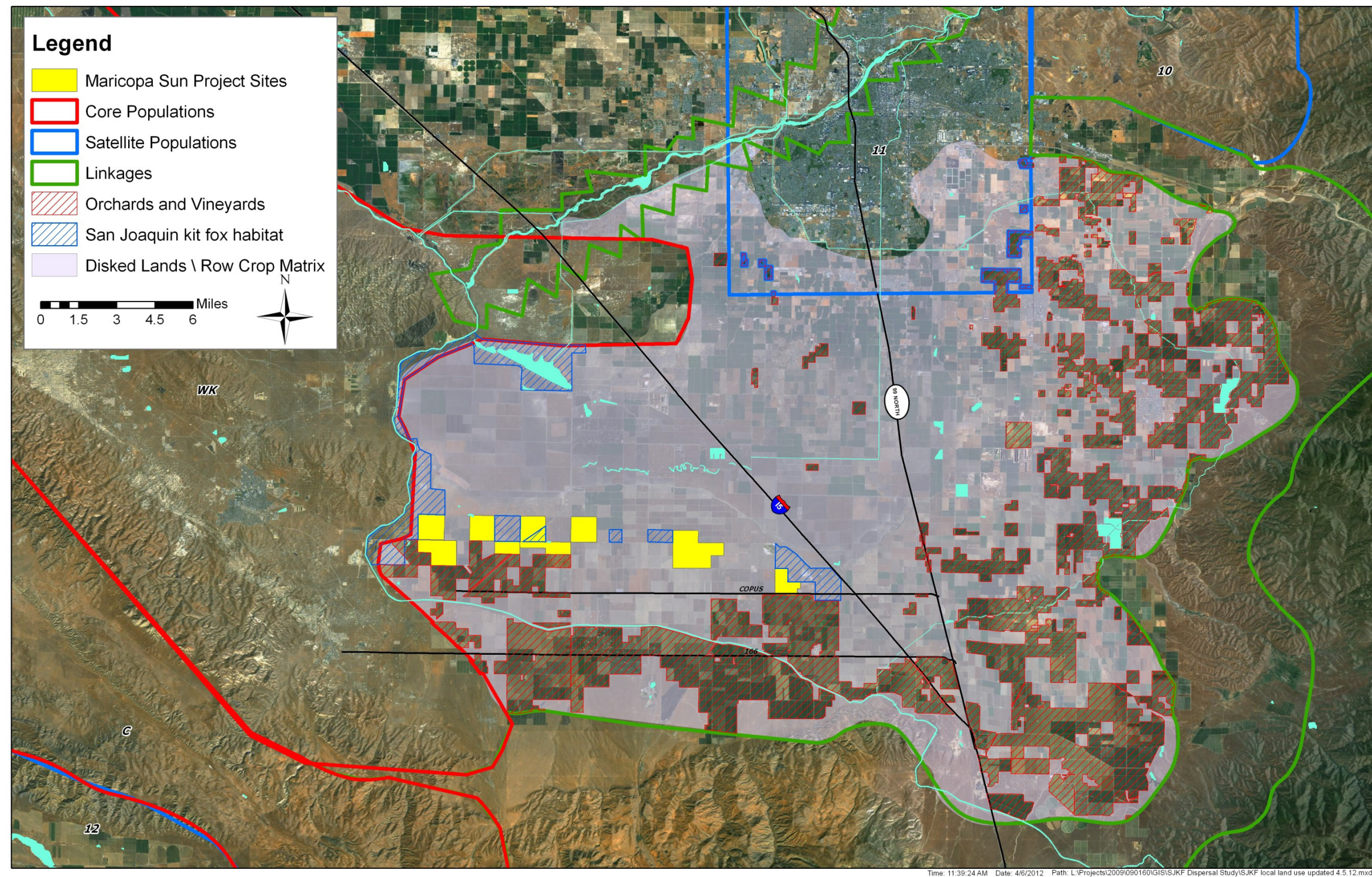
kit fox, although kit foxes are known to move through a variety of partially disturbed habitats such as farm lands, oil fields, and areas with low density roads and highways (Haight *et al.* 2002). Steep topography probably impedes the movement of kit fox greater than any other natural barriers (Warrick and Cypher 1998).

The functions and values of the Maricopa Sun project as a corridor for San Joaquin kit fox was evaluated based upon the described parameters including:

- type of corridor (habitat vs. conduit)
- land use and presence of habitat,
- terrain,
- presence of barriers including agricultural lands, roads, canals, and
- distance to kit fox core populations, satellite populations, and linkages.

Project Effects on the Regional Dispersal of the San Joaquin Kit Fox

The project sites are situated immediately east and somewhat south of a fingerlike projection of the West Kern core population of the San Joaquin kit fox (Figure 3). This population is one of two primary core population areas, the other being the Carrizo Plain core population. A satellite population, which is an urban population of kit fox inhabiting the City of Bakersfield, occurs approximately 9 miles to the northeast of the easternmost project site. Other satellite populations occur to the north of the project site at the Pixley National Wildlife Refuge, Kern National Wildlife Refuge, and Semi-tropic Ridge Ecological Area. These core and satellite populations are connected by a series of identified corridors and linkages, whose primary purpose is to allow for the continued dispersal of kit foxes among these populations. The recovery of the San Joaquin kit fox is considered to be closely tied to the long-term maintenance of these populations and linkages (USFWS 1998, USFWS 2010).



The Maricopa Sun project sites are not located within any core population, satellite population, or identified linkage corridor (Figure 3). Development of the project sites will not remove suitable kit fox habitat from these highly prized population centers or the identified corridors and linkages connecting population centers. However, the sites are situated between the West Kern core population and the Bakersfield satellite population. Linkages between these core and satellite populations occur on all sides of the Maricopa Sun project. One other important corridor that is not identified as a linkage is a habitat corridor that is associated with the California Aqueduct. San Joaquin kit foxes are known to use the small strip of habitat occurring within the Aqueduct Right-of-Way, which is approximately 100 feet wide on each side of the Aqueduct. This habitat corridor extends from the West Kern core population to the Edmonston Pumping Plant at the base of Tejon Ranch, to the southeast of the project sites. In the vicinity of the project sites, the California Aqueduct mostly lies to the south of the sites and provides a corridor along the southernmost portion of the San Joaquin Valley. Development of the project may have the potential to reduce the dispersal of kit foxes among these areas, primarily along two geographic orientations:

- 1) along a north-south axis between a linkage corridor to the south of the project sites near Windwolves Preserve and a fingerlike projection of the West Kern core population to the north (see Figure 3), and
- 2) along a southwest-northeast axis between the West Kern core population and a satellite population at Bakersfield (see Figure 3).

North-south Axis

The north-south distance between the southern linkage along the base of the Transverse Range and the fingerlike projection of the West Kern core population to the north of the project site is approximately 23 miles. This is an uncharacteristically far distance for a single kit fox to disperse, particularly because the majority of that distance does not contain kit fox habitat and consists of matrix of intensively farmed row crops, orchards, and vineyards. There are substantial barriers to the north-south movements of kit foxes through this area that are independent of the Maricopa Sun project. These existing barriers include Highway 166, the California Aqueduct, and an expanse of approximately 94,907 acres of agricultural orchards and vineyards (Figure 3). These barriers are all south of the project sites. Most of the land to the north of the project sites and south of the West Kern Core population consist of a matrix of agricultural row crops and fields that are routinely fallowed. These lands are also a significant barrier to the movements of the San Joaquin kit fox. Although these barriers may be somewhat permeable to kit fox movements, there are factors that further reduce the potential for movements through this area. Coyotes, a known competitor and predator on the San Joaquin kit fox are plentiful in this area (Quad Knopf unpubl data), there are no native lands or fallowed lands which would support escape dens, and there is a lack of available prey. Because of these issues, there is no viable north-south conduit corridor or habitat corridor that would be affected by the Maricopa Sun project.

The best and most useful corridor for the north-south movements of kit fox is the West Kern core population site itself. Kit fox occupy that broad expanse of habitat to the west of the project, and there is a clear and open habitat corridor between the linkage corridor to the south of the sites

(including Windwolves Preserve) and the portion of the West Kern core population to the north of the sites. The distances involved are relatively great, and it is unlikely that a single kit fox would traverse that distance. Instead, the connection between the southern linkage and the West Kern core area to the north of the sites (and satellite populations beyond) would be a genetic linkage.

Southwest-northeast Axis

The West Kern core population of the San Joaquin kit fox and the satellite population that occurs within the urban area of Bakersfield are connected by several identified corridors. The highest value corridor between these two areas follows the Coles Levee Ecological Reserve, the Kern Water Bank, and the Kern River Parkway in Bakersfield. A secondary corridor follows the transverse range to the east, and then the foothills of the Tehachapi Mountains north to Bakersfield. The California Aqueduct also provides a partial corridor between these areas.

The project occurs between these two populations, but south of the high value corridor, and north of the southernmost corridor and the California Aqueduct corridor. The Bakersfield satellite population occurs to the northeast of the project, and foxes would need to travel southwest to northeast through the project sites, a distance of approximately 23 miles. This is an uncharacteristically far distance for a single kit fox to disperse, particularly because the majority of that distance does not contain kit fox habitat. There are small patches of remnant habitat that occur among and to the east of the project, but those habitat patches are small relative to the typical home ranges of foxes. The habitat patch to the east of the project near Interstate 5 supports foxes. One San Joaquin kit fox was observed on that site (Quad Knopf 2010) and an old natal den was identified within that patch in 2010 (C. Uptain unpubl data). There is no evidence that San Joaquin kit foxes occur in or use the other habitat patches. The majority of the area between the West Kern population and the Bakersfield population is not suitable to support foxes. To the east of Interstate 5, there is an expanse of approximately 12 miles of agricultural lands, roadways, irrigation ditches, and other infrastructure. These large expanses of agricultural lands represent an impenetrable barrier to kit fox movements, thus a habitat corridor or a conduit corridor is virtually non-existent.

Two identified corridors connect the West Kern core population to the Bakersfield satellite population. These are primarily habitat corridors that are nearly intact. These corridors have a high value to the recovery of the San Joaquin kit fox, whereas the project sites have virtually no value for connectivity through the area.

Project Effects on the Local Dispersal of the San Joaquin Kit Fox

Project effects on the local dispersal of the San Joaquin kit fox is directly dependant upon the presence of resident populations in the area, presence and distribution of habitat patches capable of supporting kit foxes, the presence of alternative corridors for the movement of kit foxes, and the relative contributions of the project sites to allow fox movements. Other factors to be considered are existing barriers to movements and the presence of prey, competitors, and predators. The Maricopa Sun Solar project sites occur within a matrix of active farmlands, fallowed farmlands, and small remnant patches of Saltbush Scrub and Alkali Sink habitats

(Figure 3). The agricultural matrix consists of approximately 400,681 acres of land. Most of the habitat patches occurring within this area are small and are of insufficient size to support even a small population of San Joaquin kit fox.

During protocol-level surveys for kit foxes conducted in 2009 (Quad Knopf 2010) there was no diagnostic signs of kit foxes using the project sites and the repeated disking of the project sites has eliminated virtually all habitat value aside from the potential for foxes to disperse across the sites. There are patches of habitat that support rodents and other potential prey species along some roadsides and in native and ruderal habitat patches near the project sites that could provide limited foraging potential. The only evidence of kit foxes in the vicinity of the project sites that were found included a skull that was found to the west of Site 1, which is within the West Kern core population area, and a kit fox was observed during a night spotlighting effort to the east of the project sites in Alkali Sink habitat. Although the West Kern core population of kit fox covers a very large area and is robust, the population to the east of the project sites occurs in a very limited area of approximately 1,732 acres. This habitat patch is currently extremely isolated, with virtually no connection to other areas of suitable habitat. Because of the lack of a connecting corridor, a high potential for habitat degradation over time, and the likelihood of low numbers of foxes at that site, this population may not be sustainable and has a high risk of extirpation.

The project sites do not currently provide a habitat corridor or conduit corridor between the West Kern core population and this isolated population of kit foxes and construction of the solar facility will not impact local kit fox dispersal. However, the project sites may contribute to a tenuous and unreliable connection between the West Kern population and the small, isolated habitat patch to the east of the project sites. Improvement of this connection may not be advisable because the presence or creation of a corridors leading to unsuitable habitat could produce a “population sink” effect.

The project includes measures that will enhance the potential for kit foxes to reside on the project sites and in the immediate vicinity, which is preferable to simply improving connectivity. Integrated movement corridors will be provided along the edges of the project sites and escape dens will be provided along these corridors to reduce the potential for mortalities due to competition and predation by coyotes, and enhance the potential for survival of foxes. The project sites will be fenced with a security fence that will be raised above ground level, thus the sites will be permeable to kit foxes movements and escape dens will be provided within the solar fields. It is anticipated that there will be some encroachment and use of the project sites by kit fox prey species, which could lead to an improvement of the survivorship of kit foxes using the project sites and movement corridors. Finally, the project includes the establishment of conservation easements and habitat improvement of several blocks of land occurring among the project sites. There are four blocks totaling approximately 400 acres that are strategically located to enhance the movements of kit foxes along this conduit corridor. These blocks are located within site 1 (20 acres), Site 3 (150 acres), west of site 3 (80 acres) and site 16 (160 acres). Together, these enhancements far outweigh any effects that the project may have on local or regional kit fox dispersal.

CONCLUSIONS

The Maricopa Sun solar project will not affect the regional dispersal of San Joaquin kit foxes. The project sites are located within an area that does not provide regional habitat corridors or conduit corridors. The high degree of intensive agricultural development in the area along with other risk factors for the San Joaquin kit fox (e.g., lack of prey, high incidence of predators and competitors) substantially reduce the potential for foxes to move through the area. Similarly, on a local level, the project sites do not currently contribute to a habitat corridor or conduit corridor. A tenuous and unreliable connection exists between the West Kern core population and a small, isolated habitat patch that currently supports kit fox. Measures are included in the project that may encourage the use of the sites by resident kit foxes and contribute to this connection. Development of the project will not affect the regional or local dispersal of kit foxes and will not diminish the potential for recovery of the San Joaquin kit fox in the southern San Joaquin Valley.

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SPECIAL STATUS SPECIES NOT COVERED BY THE
HABITAT CONSERVATION PLAN

MARICOPA SUN SOLAR PROJECT,
KERN COUNTY, CALIFORNIA

March 2014



Quad Knopf

SPECIAL STATUS SPECIES NOT COVERED BY THE HABITAT CONSERVATION PLAN

Maricopa Sun Solar Project, Kern County, California

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1.0 INTRODUCTION

Maricopa Sun, LLC (Project Administrator) is in the process of developing a solar complex (Maricopa Sun Solar Complex [Project]) in southern Kern County, California (Figure 1). The Project currently consists of seven Solar Sites that total 3,798.3 acres within southwestern Kern County, California, approximately three miles northeast of the unincorporated community of Maricopa (Figure 2, Table 1). Construction of the Project includes site preparation, grading, commercial operations, maintenance, and Project decommissioning.

Table 1
Maricopa Sun Solar Complex: Solar Sites

HCP Site Number	APN	Township, Range	Solar Site Parcels (acres)
Site 2-S	220-120-(18-19)	T.32S., R.25E., Sec.21	628.8
Site 3-S	220-110-08	T.32S., R.25E., Sec.23	460.4
Site 4-S	295-040-(30-31)	T.32S., R.26E., Sec.19	652.5
Site 5-S	220-170-(01-02,05,07)	T.32S., R.25E., Sec.29 & 30	797.2
Site 6-S	220-130-01	T.32S., R.25E., Sec.27	304.2
Site 7-S	220-130-(02,12)	T.32S., R.25E., Sec.25&26 ¹	471.6
Site 15-S	295-130-25	T.32S., R.27E., Sec.33	483.6
TOTAL			3798.3

Of the threatened and endangered species and other special-status species occurring on and in the vicinity of the Project, five were selected (MSHCP Chapter 1, Section 1.2.3) for coverage under the Maricopa Sun, LLC Habitat Conservation Plan (MSHCP), based on extant populations and presence of potential habitat, and four were selected to not be covered by the MSHCP, based on the lack of habitat and very small chance that populations persist in the Permit Area. Four federally listed species, the Kern mallow (*Eremalche kernensis*), the San Joaquin woollythreads (*Monolopia congdonii*), the giant kangaroo rat (*Dipodomys ingens*) and the Buena Vista Lake shrew (BVLS) (*Sorex ornatus relictus*), occur in the vicinity of the Maricopa Sun Solar Complex. The MSHCP does not include these as Covered Species and no take coverage is being sought (Table 2). These species are not currently present on the Solar Sites, nor are they anticipated to become present on the sites during the periods of construction, operations and maintenance, or decommissioning.

2.0 SPECIAL STATUS SPECIES NOT COVERED

This section provides a description of the four special status species that are not covered by the MSHCP. Information on status, life history, occurrence within the project area, and potential for take for each species are represented below.

Table 2
Special Status Species Not Covered by the HCP

Common Name	Scientific Name	Status ¹			Risk Level
		Federal	State	Other	
Plant					
Kern mallow	<i>Eremalche kernensis</i>	FE		1B.1	low
San Joaquin wooly-threads	<i>Monolopia congdonii</i>	FE			low
Mammals					
Giant kangaroo rat	<i>Dipodomys ingens</i>	FE	ST	-	low
Buena Vista Lake shrew	<i>Sorex ornatus relictus</i>	FE	CSSC	-	low

The following acronyms are defined as: 1B.1/.2 = California Native Plant Society listed species, CSSC = California Species of Concern, FE = Federally Endangered, ST = State Threatened.

2.1 Kern Mallow (*Eremalche kernensis*)

STATUS

The Kern mallow was federally listed as endangered in 1990 and is listed by the California Native Plant Society (CNPS) as a 1B.1 species, indicating the species is rare throughout its range and is seriously threatened in California (over 80 percent of occurrences threatened or with a high degree and immediacy of threat). Among the concerns for the species' survival are the effects of habitat fragmentation from roadways and transmission line right-of-ways (ESRP 2005). All CNPS 1B list plants also meet the California Fish and Game Code (FGC) Section 2062 and 2067 definitions of threatened or endangered by the California Endangered Species Act (CESA).

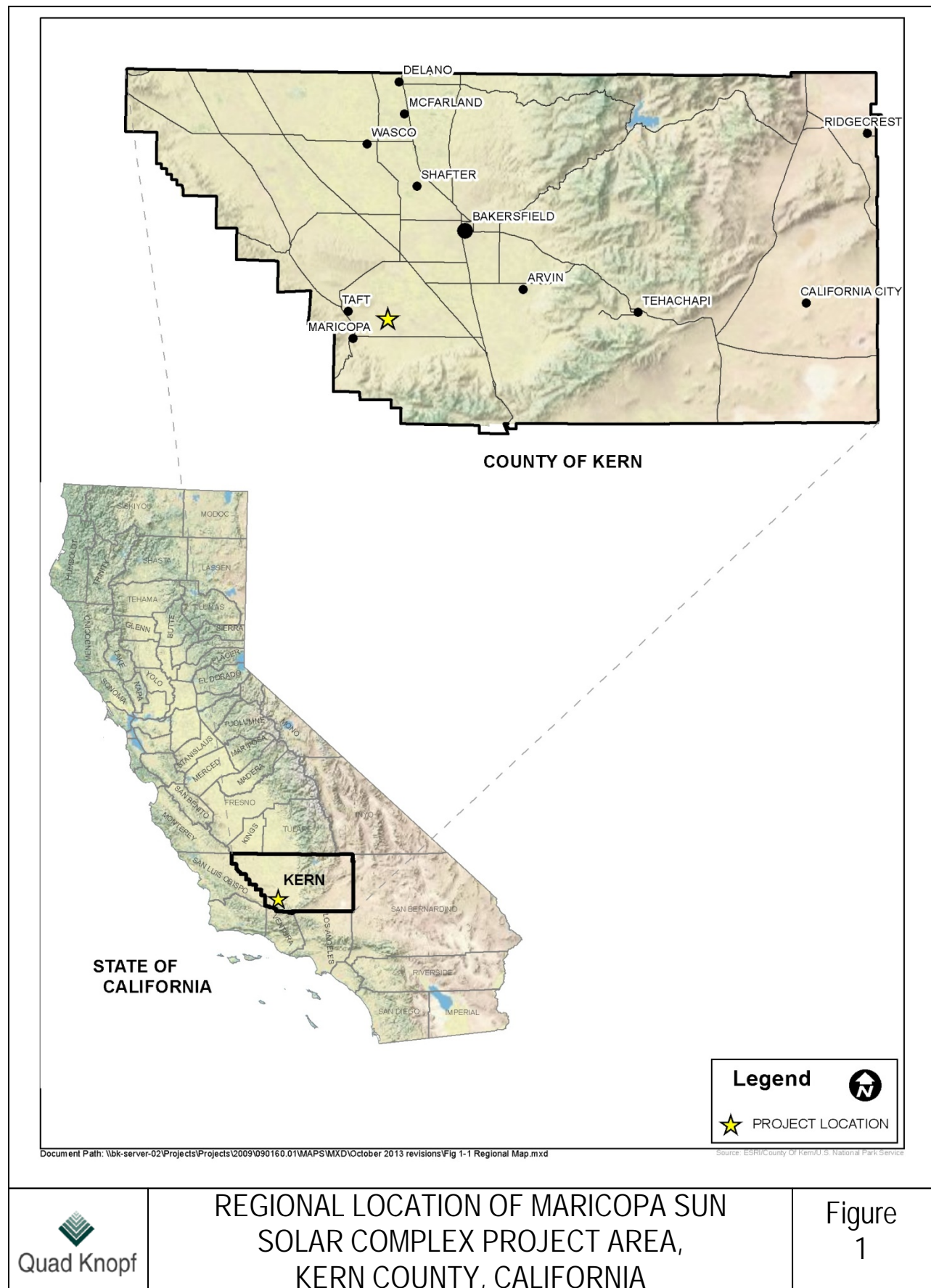
Recovery actions that are covered in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) include detailed habitat management studies.

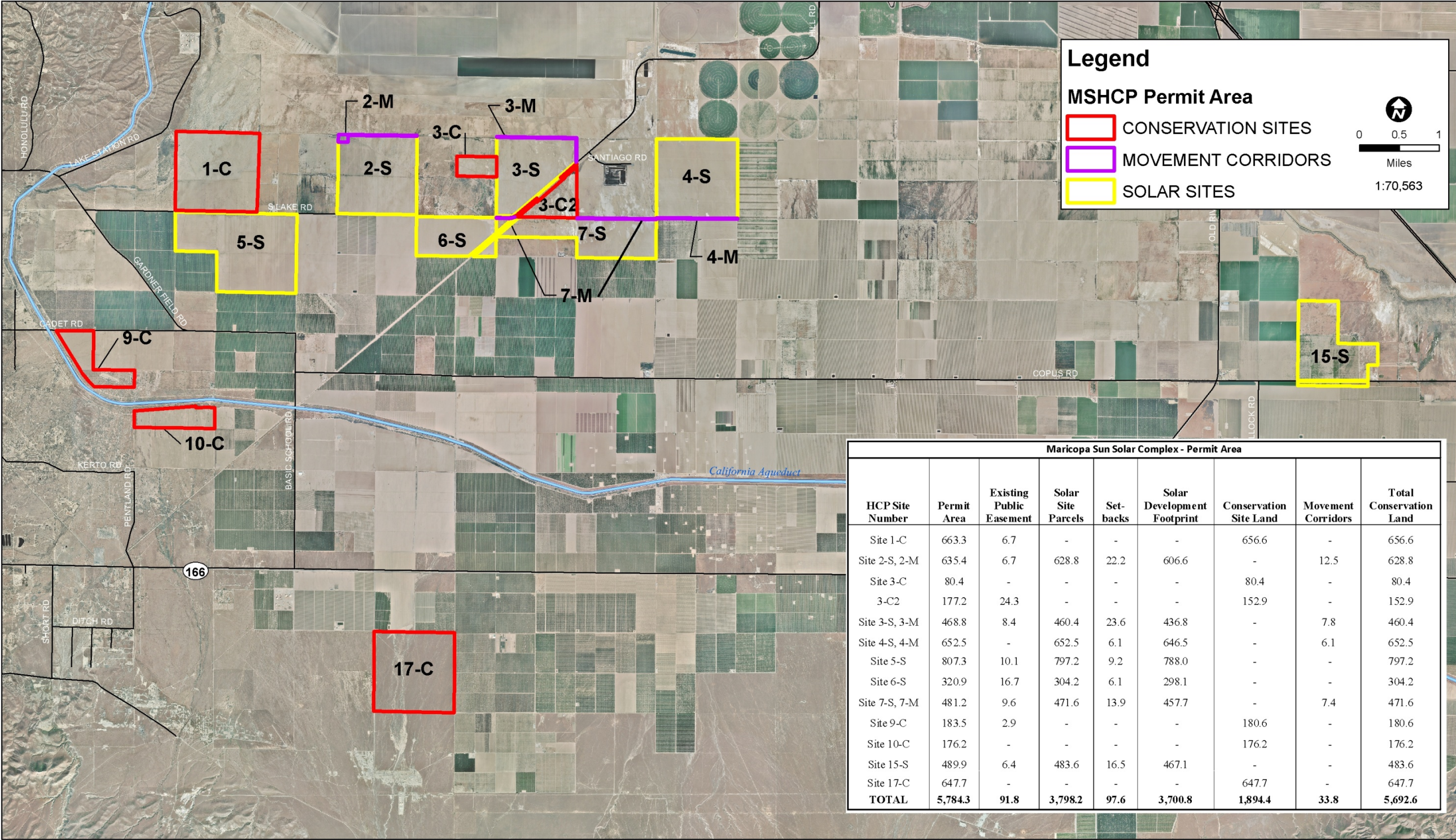
LIFE HISTORY

The Kern mallow has a restricted distribution, occurring only in Kern County north of McKittrick within the Lokern area. It is known from sites in the Temblor Valley, Belridge Oil Fields, and two sites west of Buttonwillow. Recently, Kern mallow has been found more extensively throughout an approximately 40-square mile area within the Lokern area, between Buttonwillow and McKittrick.

The Kern mallow is an arid adapted, annual plant. It occurs in Valley Saltbush Scrub natural communities along with saltbush (*Atriplex* spp.), red brome (*Bromus madritensis rubens*), red-stemmed filaree (*Erodium cicutarium*), woolly goldfields (*Lasthenia minor*), and white Sierran layia (*Layia pentachaeta albida*).

Germination typically occurs in January and February, with flowering beginning in March. Fruit production ensues shortly after, and may continue until May with sufficient moisture. It is unknown how long seeds may remain viable in the soil once they mature and fall to the ground.





Maricopa Sun Solar Complex - Permit Area								
HCP Site Number	Permit Area	Existing Public Easement	Solar Site Parcels	Set-backs	Solar Development Footprint	Conservation Site Land	Movement Corridors	Total Conservation Land
Site 1-C	663.3	6.7	-	-	-	656.6	-	656.6
Site 2-S, 2-M	635.4	6.7	628.8	22.2	606.6	-	12.5	628.8
Site 3-C	80.4	-	-	-	-	80.4	-	80.4
3-C2	177.2	24.3	-	-	-	152.9	-	152.9
Site 3-S, 3-M	468.8	8.4	460.4	23.6	436.8	-	7.8	460.4
Site 4-S, 4-M	652.5	-	652.5	6.1	646.5	-	6.1	652.5
Site 5-S	807.3	10.1	797.2	9.2	788.0	-	-	797.2
Site 6-S	320.9	16.7	304.2	6.1	298.1	-	-	304.2
Site 7-S, 7-M	481.2	9.6	471.6	13.9	457.7	-	7.4	471.6
Site 9-C	183.5	2.9	-	-	-	180.6	-	180.6
Site 10-C	176.2	-	-	-	-	176.2	-	176.2
Site 15-S	489.9	6.4	483.6	16.5	467.1	-	-	483.6
Site 17-C	647.7	-	-	-	-	647.7	-	647.7
TOTAL	5,784.3	91.8	3,798.2	97.6	3,700.8	1,894.4	33.8	5,692.6

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SITE PLAN
MARICOPA SUN SOLAR COMPLEX, KERN COUNTY, CALIFORNIA

Figure
2

OCCURRENCE WITHIN THE PROJECT AREA

The Kern mallow has been reported from sites near the project area; however, it is possible the reports are actually for Parry's mallow (*Eremalche parryi*) given the taxonomic uncertainty between the two species (Andreasen 2012). The Kern mallow has not been detected and has a very low likelihood of being or becoming present within the Permit Area.

POTENTIAL FOR TAKE

Kern mallow does not currently occur within the Permit Area. The likelihood of Kern mallow becoming present within the Permit Area is very small.

2.2 San Joaquin Woollythreads (*Monolopia congdonii*)

STATUS

The San Joaquin woollythreads was federally listed as endangered in 1990 and state listed by the California Native Plant Society as a 1B.2 species, indicating the plant is rare throughout its range and fairly, but not seriously, threatened in California (20-80 percent of occurrences threatened or with a moderate degree and immediacy of threat). All CNPS 1B list plants also meet the FGC Section 2062 and 2067 definition of threatened or endangered by the CESA. Among the largest threats to the San Joaquin woollythreads are conversion of land to agriculture and urban development.

Recovery actions that are covered in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) include detailed habitat management studies.

LIFE HISTORY

The San Joaquin woollythreads is a dicot, annual herb native to California. The species occurs within the San Joaquin Valley floristic zone in the counties of Fresno, Kings, Kern, San Benito, Santa Barbara, and San Louis Obispo; and is now extirpated from Tulare County. Currently only 19 populations of San Joaquin woollythreads are currently known (USFWS 2010). Of the previously 91 reported California Natural Diversity Database (CNDDB) occurrences, 25 are now described as "possibly extirpated," and all but two of those are confirmed to be extirpated by the U.S. Fish and Wildlife Service (USFWS 2010).

The San Joaquin woollythreads occupies annual grassland and saltbush scrub habitats of the San Joaquin Valley floor. These habitats are characterized by hot, dry summers and mild, moist winters. Seasonal maximum rainfall occurs in December through February and this yields maximum annual growth from February through May. Plant associations within the geographic area consist of several annual grass species, such as wild oats (*Avena fatua*), brome (*Bromus* sp.), barley (*Hordeum* sp.), fescue (*Festuca* sp.), common saltbush (*Atriplex polycarpa*), and spiny saltbush (*Atriplex spinifera*).

The name of this species derives from the long trailing stems that are covered with hairs, which often grow in a twining fashion reminiscent of a tangled ball of thread. As an annual forb, the San Joaquin woollythreads only flowers once a year, between late February and early April. Under the correct conditions it has been known to bloom in May.

OCCURRENCE WITHIN THE PROJECT AREA

The San Joaquin woollythreads has not been detected and has a very low likelihood of being present within the Permit Area. On the basis of CDFW reports, it is highly unlikely the San Joaquin woollythreads will ever occur in the vicinity of the Project.

POTENTIAL FOR TAKE

The San Joaquin woollythreads has not been detected on or in the vicinity of the Permit Area, and is very unlikely to ever occur on or in the vicinity of the Permit Area. The potential for take of the San Joaquin woollythreads due any Covered Activity or any other Project activity is exceedingly low.

2.3 *Giant Kangaroo Rat (Dipodomys ingens)*

STATUS

The giant kangaroo rat was federally listed as endangered in 1980, and was California State listed as endangered in 1987.

Recovery actions that are covered in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) include detailed habitat management studies.

LIFE HISTORY

Giant kangaroo rats are inhabitants of the most arid, southwestern edge of central California's San Joaquin Valley, and adjacent valleys and plateaus of the Inner Coastal ranges. Populations of this species are currently fragmented into six major geographic units: the Panoche Region in western Fresno and Eastern San Benito Counties, Kettleman Hills in Kings County, San Juan Creek Valley in San Luis Obispo County; western Kern County in the area of Lokern, Elk Hills and other uplands around McKittrick, Taft, and Maricopa; Carrizo Plain Natural Area in eastern San Luis Obispo County; and Cuyama Valley in Santa Barbara and San Luis Obispo Counties. They are found from elevations of about 270 to 2,600 feet, though currently most extant populations are at elevations above 600 feet with few populations located above 2,300 feet (USFWS1998).

Giant kangaroo rats mainly inhabit sandy-loam soils located on level and gently sloping ground vegetated with annual grasses and forbs and widely-scattered desert shrubs. Extant habitat has been fragmented, mostly by irrigated croplands and petroleum developments. Below about 1,300 feet at Panoche Creek in western Fresno County and in Lokern, Buena Vista Valley, and Elk Hills regions of the southern San Joaquin Valley, giant kangaroo rats are found in grassland and

open scrub habitats. Scattered common and spiny saltbushes or ephedra shrubs characterize habitat with which giant kangaroo rats are associated. The most common herbaceous plants characterizing giant kangaroo rat habitat are red brome, annual fescue, and red-stemmed filaree (Williams 1992).

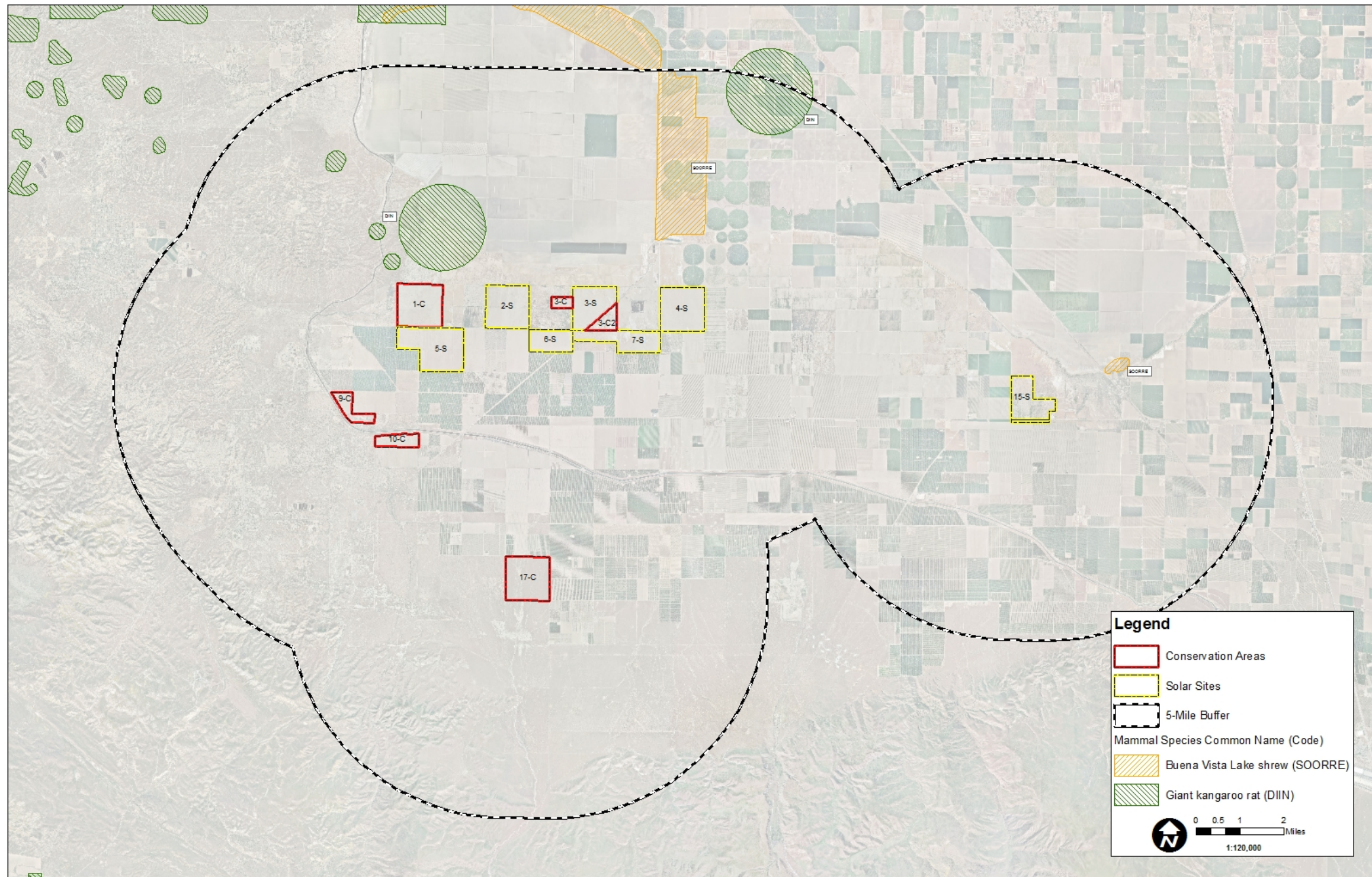
Giant kangaroo rats are primarily seed eaters (granivorous), but will also consume insects and green plants, such as the leaves of clover (*Trifolium depauperatum*) and filaree. Giant kangaroo rats drink little if any water due to their kidney physiology, high production of metabolic water (water produced during cellular metabolism), and the high water content in the seeds they eat.

Giant kangaroo rats can breed the year of their birth when environmental and social conditions are favorable. Most females enter estrus (a state of being reproductively receptive) during the cool, wet winter in central California, usually from mid to late December through January. When population density is high and most precincts (burrow systems) are occupied, adult females may have only a single litter of one to four young after a gestation period of about 32 days. Under these circumstances, young-of-the-year tend not to breed. During years of drought and low or no seed production, females are monestrous (single estrus cycle) or anestrous (no estrus cycle). During years with a prolonged wet season or where population density is low and there are many vacant precincts, adult females may have two to three litters, and young-of-the-year females may begin breeding when about 12 to 13 weeks old. Young giant kangaroo rats appear on the surface when they weigh about 50 to 70 grams and are presumably about 6.5 to 8.5 weeks old (USFWS 1998).

Giant kangaroo rats are active all year and in all types of weather. They do not migrate, nor do they become dormant or torpid. This species is known for bipedal locomotion in the form of two-footed hopping. They forage on the surface from around sunset to near sunrise, though most activity takes place in the first 2 hours after dark. Giant kangaroo rats cut the ripening heads of grasses and forbs and cure them in small surface pits located on the area over their burrow system. After placing seeds and seed heads in pits, the animal covers them with a layer of loose, dry dirt (USFWS 1998). One diagnostic sign of kangaroo rat presence are “haystacks,” the cut and piled stems and seed heads of grasses.

OCCURRENCE WITHIN THE PROJECT AREA

No giant kangaroo rats or their diagnostic signs were observed on or near any of the project sites (Quad Knopf, 2010a, 2012b). No suitable habitat for this species is present on or in the immediate vicinity of the project sites. The closest historic CNDDDB record, dated 1989, reports giant kangaroo rat approximately 0.6 miles northwest of Site 2-S (Figure 3). Two 1978 CNDDDB records report the species approximately 1.3 miles north of Site 5-S, and approximately 2 miles northwest of Site 5-S (Figure 3). Another 1978 record reports the species approximately 3.3 miles northwest of Site 5-S, which places it on the slopes of San Emigdio Mountain, not on the valley floor where the project site is (Figure 3). A 1979 record reports giant kangaroo rat approximately 3.7 miles northeast of Site 4-S (Figure 3).



The historic records of giant kangaroo rat approximately 2 miles northwest of Site S-2, and 3.7 miles northeast of Site 4-S are not likely extant. Those areas are on the valley floor, where widespread and intensive agricultural activities dominate the landscape. No remnants of native habitat that would be capable of supporting viable populations of this species exist within these areas. The three subpopulations that were recorded in the San Emigdio Hills northwest of the project sites are likely extant.

POTENTIAL FOR TAKE

It is unlikely that giant kangaroo rats would become established on or in the vicinity of the project sites during the life of the project. Known populations of this species occur northwest of the project sites, but these populations are located west of the California Aqueduct, which acts as partial barrier to the species' movements. Furthermore, the land use between the project sites and the California Aqueduct near the locations of these populations is intensively managed agricultural fields and is not compatible with this species. It is unlikely that this species would become present on lands within or adjacent to the project sites. Neither construction activities, operations and maintenance activities, decommissioning activities, nor conservation activities would result in the take of this species.

2.4 Buena Vista Lake Shrew (*Sorex ornatus relictus*)

STATUS

The BVLS is federally listed as endangered and is a California State Species of Special Concern.

Conservation actions presented in the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) include establishment of the Kern Lake Preserve, protection of habitat for the BVLS, and establishment of habitat that can support expansion and introduction efforts. Efforts to locate and protect other populations of the BVLS within Tulare Basin are needed.

LIFE HISTORY

The historical range of the BVLS was within the southern San Joaquin Valley in lakes, wetlands, and sloughs. The loss of habitat through drainage of wetlands and lakes, channelization of streams, and diversion of water to accommodate agricultural production has caused the decline of the BVLS. Currently, BVLS is known in four locations: the Kern Preserve, Kern Fan recharge area, Cole Levee Ecological Preserve, and the Kern National Wildlife Refuge. The species has also recently been captured in the Goose Lake area near Wasco, and on the Wind Wolves Preserve. The status of the populations in these two areas is uncertain.

Buena Vista Lake shrew has been found associated with mesophytic (moist vegetative) communities with an abundant layer of litter. Habitat associated with the more recently discovered shrews include Fremont cottonwood (*Populus fremontii*), willows (*Salix* sp.), alkali heath (*Frankenia grandiflora*), wild rye grass (*Leymus triticoides*), and Baltic rush (*Juncus balticus*) (USFWS 1998).

Shrews often eat more than their own weight in a single day to meet the needs of their high metabolic rate. Their primary diet consists of insects and other small invertebrates (Harris 1990; Maldonado 1992). During the hot months they often restrict their foraging to night-time hours. They do not store food, but must eat frequently because of their high metabolic rate. They are a secondary burrower, mostly using previously excavated burrows of other animals.

Little is known about the reproductive behavior of BVLS. Shrews generally breed only once a year during early spring and give birth after a 21 day gestation period; however, breeding from late February through early October has been documented (Rudd 1955; Brown 1974; Rust 1978). Litters usually consist of 4 to 6 young. The life expectancy of a shrew is 12 to 16 months (Rudd 1955). A short life span and limited reproductive capabilities may be a limiting factor to BVLS survival in the face of habitat loss.

OCCURRENCE WITHIN THE PROJECT AREA

No BVLS were captured or otherwise detected on the Project sites during trapping efforts conducted in habitat that could potentially harbor the species (Quad Knopf 2010a). There are several ponding basins and canals within and adjacent to Sites 3-S, 4-S, and 15-S that appeared to have habitat suitable for BVLS (Quad Knopf 2010a), but the locations of these potential habitat patches are outside of the Solar Development Footprint of the solar development.

Three historic records report BVLS within a five-mile radius of the Project site (Figure 3). The closest historic record, dated 1932, is located approximately 1.1 miles north of Site 4-S (Figure 3). A record from 1999 is located approximately 4.9 miles north-northeast of Site 4-S, within the historic basin of Buena Vista Lake (Figure 3), now known as the “Buena Vista Aquatic Recreation Area.” A BVLS observation was recorded in 1991 approximately 1.3 miles northeast of Site 15 (Figure 3). Some areas of the project sites are within five miles of USFWS-designated Critical Habitat for this shrew, but the distribution of Critical Habitat is undergoing review by the USFWS and several options have been proposed.

POTENTIAL FOR TAKE

There are some wetland areas on and near the project sites that could potentially harbor the BVLS, but these areas are not within the footprint of the solar development. No shrews were captured from the wetland areas and no evidence was found that supports a determination that these areas contain habitat that would support the shrew. The wetland areas are dry during substantial portions of the year, isolated from other wetland habitats, and the potential for the occurrence of shrews in these wetland areas is low. The wetland areas will not be impacted by the project and take of this species is not likely to occur.

3.0 CONCLUSION

The giant kangaroo rat and BVLS are not currently present on the Project sites, nor are they anticipated to become present on the sites during the periods of construction, operations and maintenance, or decommissioning. It is not likely that these species will be adversely affected by the proposed Project. Take permits are not warranted.

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CONCEPTUAL DEVELOPMENT AND MONITORING PLAN

MARICOPA SUN SOLAR COMPLEX PROJECT, KERN COUNTY, CALIFORNIA

March 2014



Quad Knopf

CONCEPTUAL DEVELOPMENT AND MONITORING PLAN

Maricopa Sun Solar Complex Project, Kern County, California

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1.0 INTRODUCTION

1.1 Purpose

This conceptual development and monitoring plan (conceptual plan) describes the activities and associated biological monitoring that would be performed during the installation of a typical 160-acre, 20 megawatt (MW) solar photovoltaic (PV) facility within the Maricopa Sun Solar Complex (Figures 1 through 3). As such, it provides a basis for comparison with biological monitoring requirements implemented on other solar projects in the region, and is the basis for the cost analysis of biological monitoring associated with the implementation of the Maricopa Sun, LLC Habitat Conservation Plan (MSHCP).

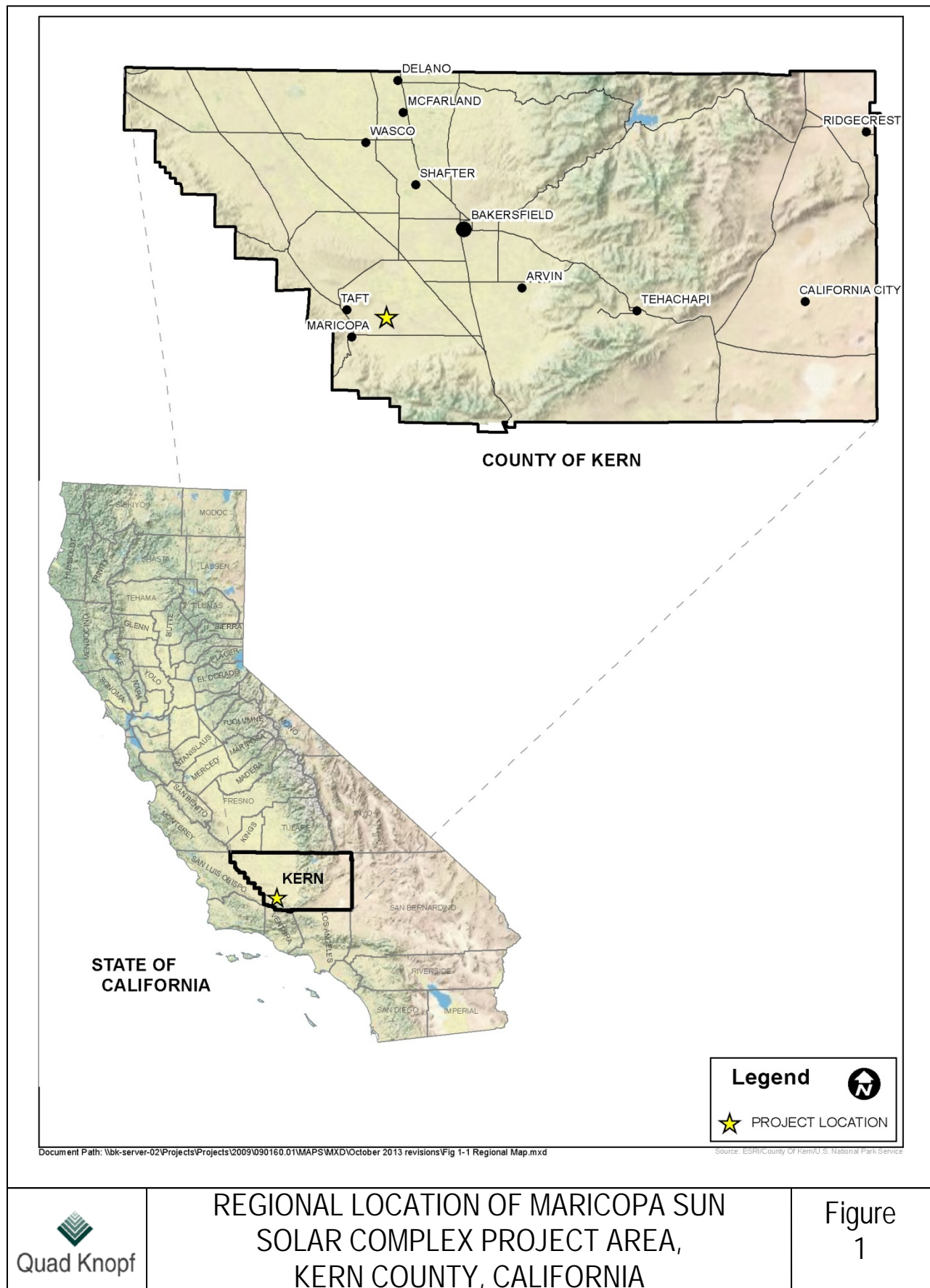
The activities discussed under this conceptual plan (project activities) fall within the scope of the pre-construction and construction activities listed as Covered Activities in the MSHCP (Chapter 2, Section 2.3). Despite those activities being well defined in the MSHCP, they are defined in this document as needed to establish the level of biological monitoring required under this conceptual plan.

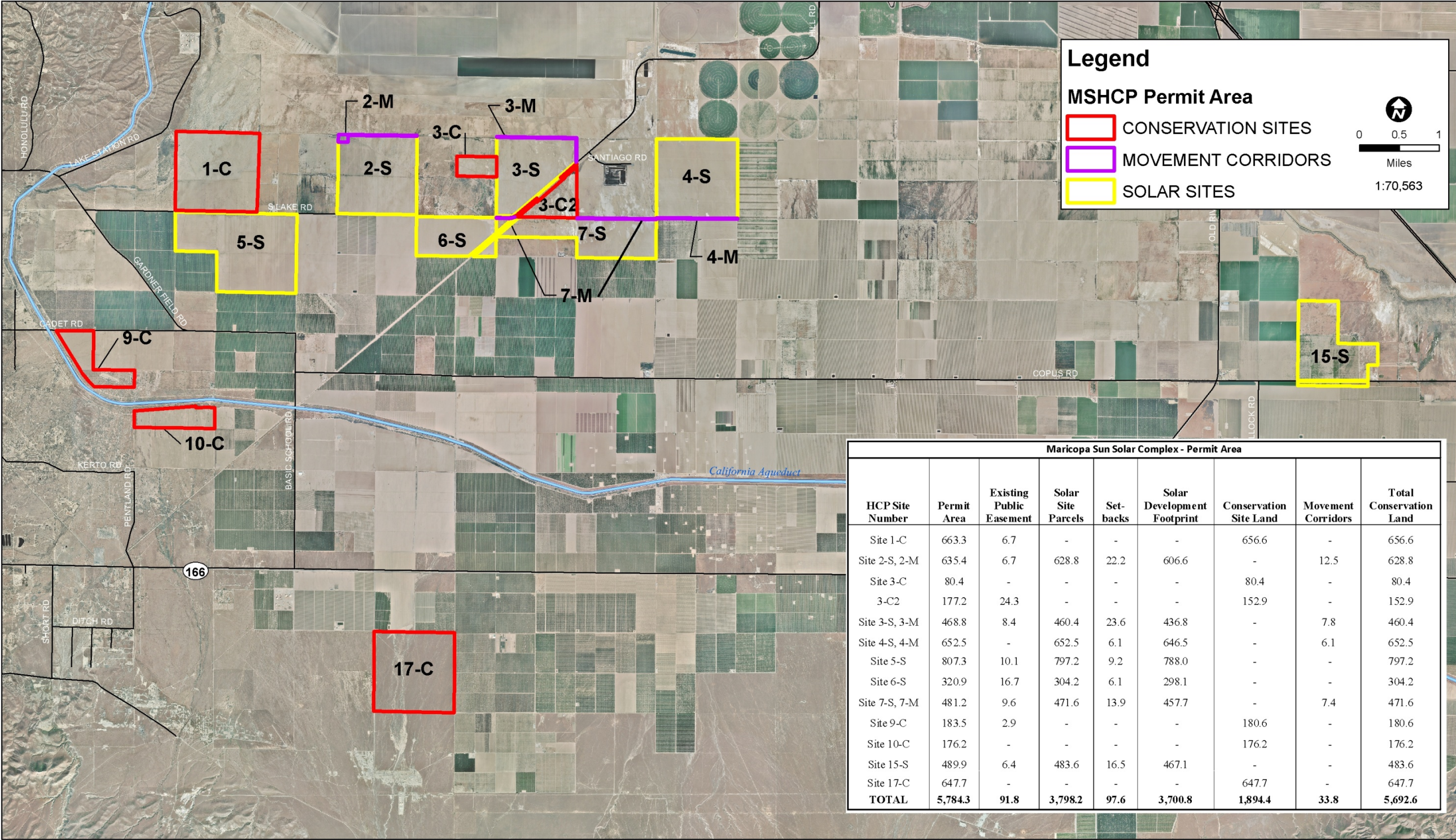
1.2 Project Overview and Location

Maricopa Sun, LLC (Project Administrator) is administering the development of a solar complex in southern Kern County, California (see Figure 1) and individual solar developers will be implementing the terms of the MSHCP. The project consists of seven Solar Sites that total 3,798.3 acres located within southwestern Kern County, California, approximately three miles northeast of the unincorporated community of Maricopa (see Figure 2, Table 1).

Table 1
Maricopa Sun Solar Complex: Solar Sites

HCP Site Number	APN	Township, Range	Solar Site Parcels (acres)
Site 2-S	220-120-(18-19)	T.32S., R.25E., Sec.21 ¹	628.8
Site 3-S	220-110-08	T.32S., R.25E., Sec.23 ¹	460.4
Site 4-S	295-040-(30-31)	T.32S., R.26E., Sec.19 ¹	652.5
Site 5-S	220-170-(01-02,05,07)	T.32S., R.25E., Sec.29 & 30 ¹	797.2
Site 6-S	220-130-01	T.32S., R.25E., Sec.27 ¹	304.2
Site 7-S	220-130-(02,12)	T.32S., R.25E., Sec.25&26 ¹	471.6
Site 15-S	295-130-25	T.32S., R.27E., Sec.33 ¹	483.6
TOTAL			3,798.3



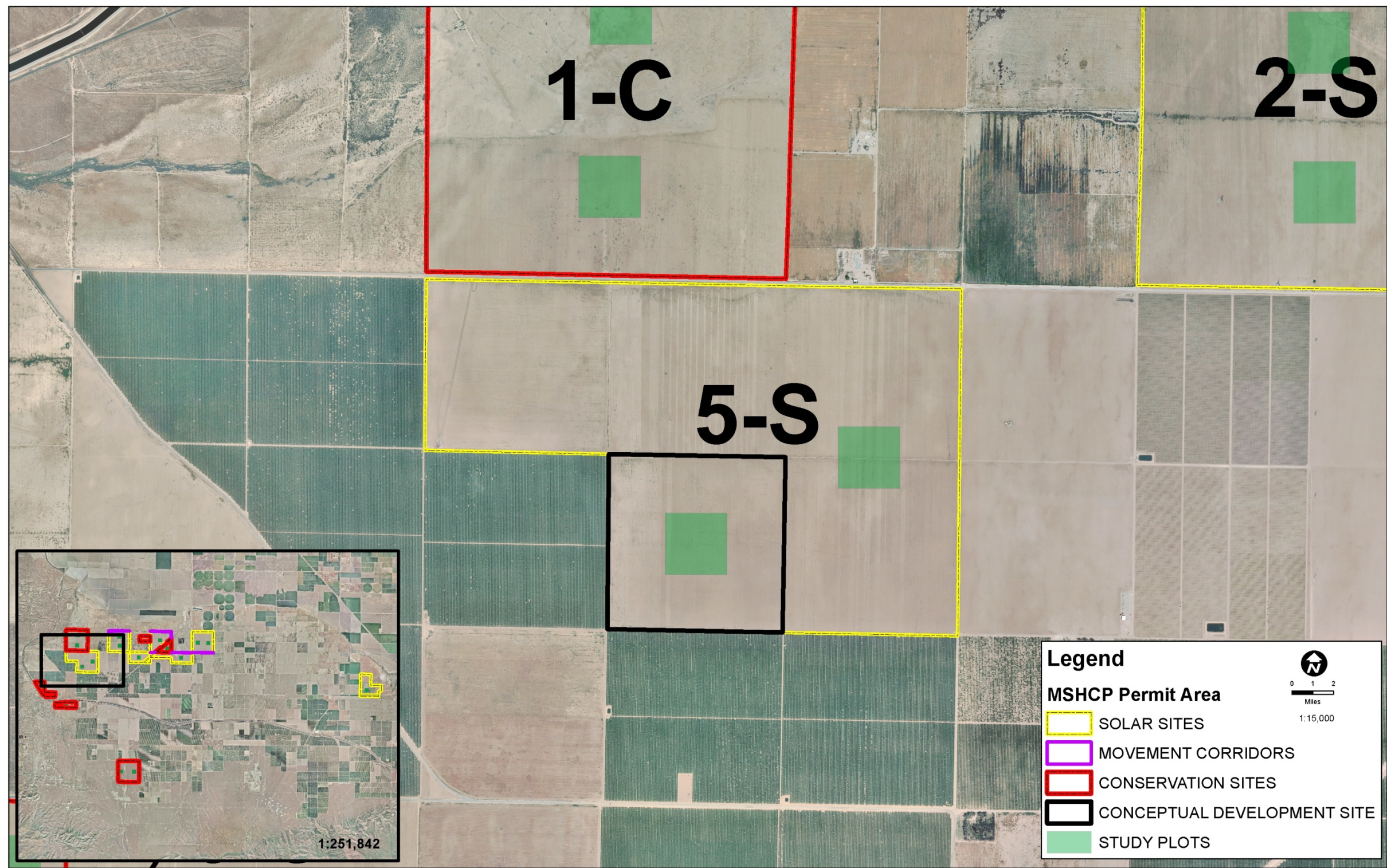


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SITE PLAN
MARICOPA SUN SOLAR COMPLEX, KERN COUNTY, CALIFORNIA

Figure
2



Complete development of a 160-acre parcel will produce an expected 20 MW of clean electricity. Solar facilities will be constructed on property owned by (i) an independent solar developer (Developers) or its affiliates or financing parties or (ii) affiliates of Project Administrator and leased or otherwise made available to a Developer. The Project Administrator will require Developers to comply with the terms and conditions of the federal Section 10(a)(1)(B) ITP outlined in the MSHCP. The Project Administrator will require Developers to provide biological monitoring to determine the effects of the MSHCP, effectiveness of the MSHCP, and for monitoring and reporting of compliance with all terms and conditions of the MSHCP.

Studies and monitoring associated with the interim and long-term habitat management of the Conservation Sites are not included in this plan. Details associated with habitat management and enhancements are addressed in the Interim and Long-term Habitat Management Plans of the MSHCP (Appendix C). This document describes the level of biological monitoring that would be conducted to track compliance with the project's minimization, avoidance, and mitigation measures, to identify actual levels of impact from project activities; and is meant to summarize and augment the information included in Chapter 6 of the MSHCP.

The activities described below represent a typical solar development plan on a 160-acre project site, but this plan will not necessarily be adopted by all solar developers involved in the Maricopa Sun Solar Complex Project. Accordingly, this is a conceptual plan and the monitoring that would be required on any given development will be adjusted as needed to account for changes in development practices. The section below provides a summary of the activities to be performed, an estimated duration of those activities, and an estimate of the level of monitoring required based on the duration of those activities.

2.0 DEVELOPMENT AND MONITORING PLAN DESCRIPTION

Development activities and associated biological monitoring for a conceptual 160-acre solar facility are identified by project phase below. The solar development project includes pre-construction and construction phases, and associated biological monitoring tasks include pre-construction surveys and biological monitoring of development activities. Pre-construction activities (Chapter 2, Section 2.3.1) include those activities that will be performed to prepare the site for construction, and construction activities (Chapter 2, Section 2.3.2) are those activities that will be performed to build the solar arrays and associated infrastructure necessary for commissioning and interconnection. Prior to any pre-construction or construction activity, pre-construction biological surveys (Chapter 2, Section 2.3.5) will be conducted to assess biological resources occurring in and around the 160-acre solar development site. Compliance monitoring will accompany all pre-construction and construction activities throughout the duration of the project.

2.1 Pre-construction Biological Surveys

Prior to any work being performed on a project site, pre-construction surveys (Chapter 2, Section 2.3.5) will be conducted to determine whether covered species are present, and to determine where any exclusionary fencing for Environmentally Sensitive Areas (ESA) might be necessary.

These surveys will be conducted within 14 days prior to construction, and will be performed in a manner that provides 100 percent coverage of the 160-acre site. An additional pre-construction survey will be required before work can resume if a break in work occurs for a period of 14 days or more. Given the level of activity throughout the project site, no additional pre-construction surveys are expected to be needed.

2.1.1 DURATION OF ACTIVITY

A pre-construction survey of the entire 160-acre site can be accomplished in a single day or less. Pre-construction surveys are projected to take approximately 16 person-hours to complete.

2.1.2 LEVEL OF MONITORING

A single pre-construction survey of a 160-acre project site would require approximately 16 hours, assuming that 27, 0.5-mile long transects spaced at intervals of approximately 100 feet would be surveyed. Four biologists could conduct a pre-construction survey in approximately four hours assuming no observations or other issues arose that required additional time to assess.

2.2 *Pre-construction Activities*

The pre-construction phase encompasses all activities associated with preparation of the project site for development of the solar facilities. These activities will encompass the entire 160-acre project site. The pre-construction phase will involve up to six pieces of heavy equipment and eight people working throughout the project site to complete all activities within the development schedule. Pre-construction activities include, but are not limited to: civil sitework, and site grading and compacting, demarcating the Solar Development Footprint, establishing and maintaining staging areas, installing fencing, gates, and parking areas (including installing signage), installing retention basins, and establishing access roads and the construction management trailer staging area.

Civil sitework, and site grading and compacting will include surveying and staking, clearing, grading, leveling, and compacting, and demarcation of the Solar Development Footprint. Site surveys will be performed to locate various property corners and property boundaries, and to complete topographic and elevation mapping. Surveying will also be needed to establish locations of solar arrays, fencing, underground conduits, and other components of the project.

Minimal site grading is anticipated, but will be dependent upon specific topographic conditions determined by site surveys. After completion of grading, a relatively level, compacted surface will be provided for the project site using ring rollers and other vehicle compaction techniques. During grading and compaction activities, water trucks (using non-potable water) will be in continuous operation to minimize airborne particles and dust. At any one time during grading, six pieces of heavy equipment may be in use.

The Solar Development Footprint will be designated by establishing fenced avoidance areas between the project site that will be under construction, and lands that will not undergo construction. These barrier fences will be established to keep construction activities confined to

the project disturbance area and to minimize potential impacts to surrounding native habitat. Temporary construction fencing will consist of T-post type structural members with ropes and flagging located greater than one foot above the ground. Alternatively, standard construction fencing consisting of orange plastic webbed fencing material may be used. The installation of this fencing will require setbacks of various distances at some locations, such as mandatory 50-foot setbacks from existing public easements. It is anticipated that all perimeters of the project site will need to be fenced at some point during construction. Trucks, forklifts, and other equipment may be used to deliver and distribute fencing and materials to the various locations within the project site.

During the pre-construction phase of the solar development, a staging area (i.e., laydown yard and trailer area) will be established that will not exceed 5 acres and that will be inside of the Solar Development Footprint. The staging area will not be fenced or paved. Materials delivered to the project site will initially be stored at the staging area before being distributed to where they will be used. The staging area will be used throughout the construction phase and will then be replaced with solar arrays when no longer needed. Vehicle tire grates, straw bales, and construction demarcation fencing will be installed prior to construction, and as necessary, at entrances to the staging areas to ensure compliance with environmental protection measures (e.g., Storm Water Pollution Prevention Plan [SWPPP]). The access roadbed to the staging areas will be 20 feet wide and consist of compacted earth surfaced with gravel or compacted soil. The access roadway is anticipated to be relatively short, approximately 0.25 miles, because the staging area will be placed as close to existing paved access roads as possible.

The project perimeters will be secured with chain-link perimeter security fencing with barbed wire along the top, for a total height of eight feet. The base of the fencing will be elevated six inches and will be knuckled (wrapped back to form a smooth edge) to be safely permeable to wildlife species. The fencing will remain in place during the operations and maintenance phase to provide security. Installation of parking areas for construction workers will be within the Solar Development Footprint. Parking areas may be transitioned from temporary dirt parking areas during the initial start of the pre-construction phase, to the staging areas once materials and equipment use provides parking space within the staging areas. It is anticipated that no more than one acre will be needed for parking on each site during the pre-construction phase, and that no more than two acres of temporary parking areas will be needed during the construction phase. The paved staging areas will be used for parking during other project phases.

The installation of retention basins is not listed as part of the Covered Activities, but instead is detailed in the Preservation, Enhancement, Minimization, Avoidance, and Mitigation measures in Chapter 2, Section 2.3.5 of the MSHCP. Retention basins are an element of the SWPPP best management practices (BMPs) and will serve as a measure to intercept excess runoff from the construction areas.

A 12-foot-wide by 60-foot-long access driveway/approach to the project site will connect to the site's parking lot, equipment areas, the area used for the construction management trailer, shipping and receiving areas, and/or storage and staging areas. Roadways will consist of compacted earth suitable to support heavy haul traffic and will be equipped with gravel pads or

other approved methods of minimizing trackout at the project site entrance. Access roads will not be paved.

2.2.1 DURATION OF ACTIVITIES

The pre-construction phase will last approximately 60 days, with activities beginning and ending at various intervals within that time frame. The general time frame for civil sitework and site grading is approximately 40 days, and will involve surveying and staking, clearing, grading, leveling and compacting, and demarcation of the Solar Development Footprint. The civil sitework and site grading will be accomplished within the first two months of project development. A materials and equipment staging area will be established within the first two weeks after commencement of the project, once the project site has been compacted and survey crews have demarcated the location and perimeter.

The installation of perimeter fencing, gates, and parking areas will be conducted within the first two months of the project, and is expected to take approximately 30 days. Fencing, gates, and parking areas will be installed concurrently with other pre-construction activities such as civil sitework and site grading. Signs will be installed concurrently with the fencing, and signs will be placed on fencing when possible.

One or more retention basins will be installed within the first month of the project within the scope of civil work and site grading. Retentions basins will take approximately 10 days to construct. Within the last two weeks of the pre-construction phase, access roads and a construction management trailer staging area will be installed, which is projected to take approximately 10 days.

2.2.2 LEVEL OF MONITORING

The majority of pre-construction activities will occur over all 160 acres of the project site and the site perimeter. These activities are expected to involve up to six pieces of heavy equipment, and eight construction personnel and their associated light transportation vehicles. No more than 30 minutes prior to the start of work, biological monitors will conduct pre-activity clearance sweeps of the project site to ensure no Covered Species, or other federally- or state-listed species, are present and to ensure all required SWPPP BMPs are correctly installed. Biological monitors will coordinate with construction foremen to determine where to begin pre-activity sweeps so as to efficiently pair sweeps with the schedule of work activities.

Given the flat, square nature of the project site, one biological monitor will be able to efficiently observe a 40-acre portion of land and the associated activities occurring on that land. For a 160-acre solar project, the entire project site can be efficiently monitored by four biological monitors. Biological monitors will walk the project site perimeters, and using binoculars, they will survey the sites from the viewing vantage of their pick-up truck beds. Because fence installation will occur along the perimeter of the project site where Covered Species are most likely to be encountered, a biological monitor will directly monitor the activity. All other pre-construction activities will be monitored from the site perimeter or from within the site when safe to do so, and always from locations that are out of the way of work crews.

Once work activities have been completed for the day, biological monitors will conduct post-activity sweeps of the entire 160-acre project site to ensure the site is free of hazardous and non-hazardous waste and to ensure all SWPPP BMPs have been correctly replaced and are in good repair. Post-activity sweeps will be conducted prior to work crews leaving the project site at the end of the day, so that any necessary remedial actions can be dealt with immediately.

2.3 Delivery and Storage of Materials and Equipment

Construction materials, including concrete, pipe, wire, cable, fuels, reinforcing steel, and small tools and consumables, will be delivered to the work sites by truck. Photovoltaic modules, trackers, foundation posts (I-Beams), inverters, transformers, HV gear, and combiner boxes for the solar facilities will be manufactured off site, and will be delivered by heavy-haul truck. The delivery of all materials is limited to the access roads and staging area, and will require up to eight pieces of small equipment (e.g. forklifts) and four people to unload and store. The distribution of materials and equipment for the construction phase will occur throughout the 160-acre project site, as necessary for associated activities.

2.3.1 DURATION OF ACTIVITY

The delivery and storage of materials and equipment is expected to take approximately 100 days and will begin concurrently with the civil site-work activities during pre-construction. Delivery of materials will continue into the construction phase. The distribution of materials and equipment to different regions of the project site will occur concurrently with activities that require such materials throughout the life of the project.

2.3.2 LEVEL OF MONITORING

Because the delivery and storage of materials will overlap with pre-construction and construction activities, and falls within the scope of construction monitoring, no additional biological monitors will be required to monitor the delivery, storage, and distribution of materials throughout the project site. Biological monitors will conduct pre-activity sweeps of the access roads and staging areas to ensure those areas are free of Covered Species. During monitoring of pre-construction and construction activities, biological monitors will be responsible for monitoring the delivery and distribution of materials.

2.4 Construction Activities

The construction phase encompasses all activities associated with construction of solar arrays and associated facilities necessary for commissioning. These activities are divided into mechanical and electrical activities. Mechanical activities include installation of foundation poles and assembly of solar arrays (vertical beam mounting, horizontal beam installation, and drive station installation). Solar fields will be constructed using the latest technology available and will consist of either crystalline silicon or thin film PV (including concentrated PV) technology on tilted or horizontal single-axis trackers. The PV modules would be mounted south-facing and tilted about 15 to 25 degrees from horizontal. Tilted tracker units would be arranged in east/west-

oriented rows and be self tracking or connected by drive shafts to drive motors that rotate the solar panels from east to west to follow the sun throughout the day. Drive motors will be located approximately every 1,200 feet along each east/west row and will be mounted on small concrete foundations, approximately 8 feet by 12 feet in area and approximately 2 feet thick.

The highest point on the tilted tracker units (the uppermost solar panel) will be approximately 10 feet above the ground when at maximum tilt. The units will be mounted using embedded foundations (i.e., piles, driven piers, or screw-type foundations) to support the trackers. Approximately 60,000 pile insertions are anticipated. The foundations will be located at the foot of each tracker unit. The embedded foundations will be approximately 4.5 inches to 12 inches in diameter and up to 15 feet deep. The concrete electrical equipment pads that support the inverters would be approximately 15 feet by 20 feet.

Electrical activities include trenching, conduit installation, cable pulls, and installation of associated electrical infrastructure (installation of inverter pad foundations, installation of inverters, and installation of transformers, combiner box mounting, photovoltaic module installation, module string wire connections, and HV contractor works). The electrical conduit from each solar panel will deliver DC power along an underground trench to the inverters located on the electrical equipment pads. Conduit trenching will be approximately 6 to 10 feet deep and 14 inches wide. Inverters will convert the DC power to AC, which will then be stepped up to medium voltage via medium voltage transformers. The medium voltage transformers will deliver power along an underground collection system to the on-site project substation, and the power will be stepped up from there for interconnection to the electrical grid at the electrical transmission corridors.

Poles for AC collection and distribution systems will include layout, drilling, installing, and backfilling posts. Trucks, cranes, drills, and other heavy line equipment will be utilized to install the new structures. Approximately 300 feet of overhead lines will be needed to connect the on-site substation to the existing off-site transmission line grid. The project substation will occupy an area measuring approximately 150 feet by 150 feet along the southwestern edge of the project site. The substation will be fenced with wildlife impermeable fencing. All electrical conduit and transformers will be fully insulated and covered with weather protection material. The tallest part of the substation will reach a height of approximately 60 feet, and no more than two pole assemblies will be needed to interconnect on-site facilities to the existing transmission grid.

It is estimated that 24 pieces of equipment will be utilized for the construction phase including, but not necessarily limited to: excavators, graders, lightweight trucks, dump trucks, flatbed trucks, support pickups, water trucks, concrete trucks, forklifts, end loaders, cranes, truck-mounted post hole augers, line trucks with air compressors, scrapers, motor graders, backhoe/loaders, truck mounted cranes, dozers, grade-all, pad drum vibratory rollers, conductor reel and pole trailers, bucket trucks, truck-mounted tensioners, and pullers and trenchers.

2.4.1 DURATION OF ACTIVITY

Construction activities are projected to take approximately 157 days to complete. Although both mechanical and electrical activities required to commission the solar site begin concurrently, the

activities associated with mechanical work will require 75 days within the first three months to complete, while electrical activities will require approximately 150 days. Construction of the solar facility will be phased to occur on 40-acre quarters of the project site at a time, with crews rotating around the 160-acre project site as tasks are completed. The number of personnel working within the project site will vary from 40 at the start of construction up to 160 at the peak, amounting to approximately 40 construction personnel per 40-acre quarter. After the peak of the construction phase, occurring approximately around month four, the number of people working on site will taper off at roughly the same ratio of 40 people per 40-acre quarter.

2.4.2 LEVEL OF MONITORING

As with pre-construction surveys, pre- and post-activity sweeps will be required throughout the project site during construction activities. No increase in biological monitors will be required, because all construction activities will occur within the same footprint (Solar Development Footprint) as pre-construction phase activities. The maximum amount of monitoring required for work occurring within the 160-acre project site will be four biological monitors, with each biological monitor being generally responsible for a 40-acre quarter of the project site. Biological monitors may not be specifically tied to a particular 40-acre portion of the project site if construction activities are intensified in one area and slacken in another. More than one biological monitor may accompany crews in areas of intensified work levels.

2.5 *Extrapolation to Other Solar Projects*

This conceptual monitoring plan pertains to a single 160-acre solar project in the Maricopa Sun Solar Complex. For a project of this size, four biological monitors will be able to efficiently and effectively monitor the project at a ratio of one biological monitor per 40 acres. The ratio of one biological monitor per 40 acres will be maintained in the event that a solar development occurs over at a larger scale. For example, a solar development occurring on 320 acres will require a total of eight full-time biological monitors to carry out pre-construction surveys, pre- and post-activity sweeps, and to efficiently monitor pre-construction and construction activities. Additionally, in the event Covered Species increase in abundance on or around a project site, it may become necessary to increase the level of biological monitoring to ensure no lethal take of species occurs. Increased abundance of Covered Species will trigger the need for additional ESA buffers and additional biological monitors stationed in the vicinity of the ESA to monitor project-related impact levels (see Chapter 4 for detailed project impacts analysis).

**DRAFT TEMPLATE CONSERVATION EASEMENT – TO BE MODIFIED – SUBJECT
TO UNITED STATES FISH AND WILDLIFE SERVICE REVIEW AND APPROVAL**

PLEASE NOTE:

The following Conservation Easement Deed is provided by the multi-agency Project Delivery Team as a standardized template document for Mitigation and Conservation Banks in California. Any modifications to this template shall be identified using tracked changes or other electronic comparison and explained in a memorandum.

(Template Version Date: March 2010)

**RECORDING REQUESTED BY AND
WHEN RECORDED MAIL TO:**

[Fill in Grantee Name/Address]

Grantee Name

Grantee Address

City, State ZIP

Attn: _____

Space Above Line for Recorder's Use Only

CONSERVATION EASEMENT DEED

[Insert Bank Name]

THIS CONSERVATION EASEMENT DEED ("Conservation Easement") is made as of the _____ day of _____, 20____, by *[insert full legal name(s) of Grantor: _____]* ("Grantor"), in favor of *[insert Grantee's full legal name: _____]* *[if CDFG is Grantee insert: the State of California]* ("Grantee"), with reference to the following facts:

RECITALS

A. Grantor is the sole owner in fee simple of certain real property containing approximately _____ acres, located in the City of *[insert City name]*, County of *[insert County name]*, State of California, and designated Assessor's Parcel Number(s) *[insert Assessor's Parcel Number(s)]* (the "Bank Property"). The Bank Property is legally described and depicted in **Exhibit A** attached to this Conservation Easement and incorporated in it by this reference.

B. The Bank Property possesses wildlife and habitat values of great importance to Grantee, the people of the State of California and the people of the United States. The Bank Property will provide high quality natural, restored and/or enhanced habitat for *[specify listed and sensitive plant and/or animal species]* and contain *[list habitats; native and/or non-native]*, *[include the following phrase only if there are jurisdictional wetlands: and restored, created, enhanced and/or preserved jurisdictional waters of the United States]*. Individually and

collectively, these wildlife and habitat values comprise the “Conservation Values” of the Bank Property.

C. The California Department of Fish and Game ("CDFG") has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and the habitat necessary for biologically sustainable populations of these species pursuant to California Fish and Game Code Section 1802. CDFG is authorized to hold easements for these purposes pursuant to California Civil Code Section 815.3, Fish and Game Code Section 1348, and other provisions of California law.

D. The United States Fish and Wildlife Service (the "USFWS"), an agency within the United States Department of the Interior, has jurisdiction over the conservation, protection, restoration and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of these species within the United States pursuant to the federal Endangered Species Act, 16 U.S.C. Section 1531, *et seq.*, the Fish and Wildlife Coordination Act, 16 U.S.C. Sections 661-666c, the Fish and Wildlife Act of 1956, 16 U.S.C. Section 742(f), *et seq.*, and other provisions of federal law.

E. **[Remove/modify this recital as appropriate when USEPA or USACE is not a signatory to the BEI or CBEI]**. The U.S. Environmental Protection Agency ("USEPA") and U.S. Army Corps of Engineers ("USACE") have jurisdiction over waters of the United States pursuant to the federal Clean Water Act, 33 U.S.C. Section 1251, *et seq.*

F. **[Use this version of Recital F when qualified nonprofit organization is Grantee]**. Grantee is authorized to hold this conservation easement pursuant to California Civil Code Section 815.3 and Government Code Section 65965. Specifically, Grantee is (i) a tax-exempt nonprofit organization qualified under section 501(c) (3) of the Internal Revenue Code of 1986, as amended, and qualified to do business in California; (ii) a “qualified organization” as defined in section 170(h) (3) of the Internal Revenue Code; and (iii) an organization which has as its primary and principal purpose and activity the protection and preservation of natural lands or resources in its natural, scenic, agricultural, forested, or open space condition or use.

[Use this version of Recital F when governmental entity is Grantee]. Grantee is authorized to hold this conservation easement pursuant to California Civil Code Section 815.3. Specifically, Grantee is a governmental entity identified in Civil Code Section 815.3 (b) and otherwise authorized to acquire and hold title to real property.

G. **[Modify this recital as appropriate when CDFG, USFWS, USEPA or USACE is not a signatory to the BEI or CBEI]**. This Conservation Easement is granted pursuant to the **[insert the appropriate term: Mitigation Bank Enabling Instrument (the "BEI") or Conservation Bank Enabling Instrument (the "CBEI")]**, by and between **[insert Bank Sponsor name(s)]**, **[insert Bank Property Owner name(s)]**, and **[insert Region name]** CDFG, CDFG Tracking No. **[insert number]**, the **[insert Field Office name]** of the USFWS, USFWS File No. **[insert number]**, the **[insert District name]** District of USACE, USACE File No. **[insert number]**, and Region IX of the USEPA, entered into concurrently with this Conservation Easement, and the Bank Development Plan (the "Development Plan"), and the Interim Management Plan and Long-Term Management Plan (as applicable, the "Management Plan") created under the **[insert: BEI**

or CBEI. [***Remove reference to any agency that is not a party to the BEI or CBEI***] CDFG, USFWS, USACE, and USEPA are together referred to in this Conservation Easement as the "Signatory Agencies".

A final, approved copy of the [***insert: BEI or CBEI***], the Development Plan and the Management Plan, and any amendments thereto approved by the Signatory Agencies, shall be kept on file at the respective offices of the Signatory Agencies. If Grantor, or any successor or assign, requires an official copy of the [***insert: BEI or CBEI***], the Development Plan or the Management Plan, it should request a copy from one of the Signatory Agencies at its address for notices listed in Section 12 of this Conservation Easement.

The [***insert: BEI or CBEI***], the Development Plan and the Management Plan are incorporated by this reference into this Conservation Easement as if fully set forth herein.

H. All section numbers referred to in this Conservation Easement are references to sections within this Conservation Easement, unless otherwise indicated.

COVENANTS, TERMS, CONDITIONS AND RESTRICTIONS

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and pursuant to the laws of the United States and the State of California, including California Civil Code Section 815, *et seq.*, Grantor hereby voluntarily grants and conveys to Grantee a conservation easement in perpetuity over the Bank Property.

1. Purposes.

The purposes of this Conservation Easement are to ensure that the Bank Property will be retained forever in its natural, restored, or enhanced condition as contemplated by the [***insert: BEI or CBEI***], the Development Plan, and the Management Plan, and to prevent any use of the Bank Property that will impair or interfere with the Conservation Values of the Bank Property. Grantor intends that this Conservation Easement will confine the use of the Bank Property to activities that are consistent with such purposes, including, without limitation, those involving the preservation, restoration and enhancement of native species and their habitats implemented in accordance with the [***insert: BEI or CBEI***], the Development Plan and the Management Plan.

2. Grantee's Rights.

To accomplish the purposes of this Conservation Easement, Grantor hereby grants and conveys the following rights to Grantee:

(a) To preserve and protect the Conservation Values of the Bank Property.

(b) To enter the Bank Property at reasonable times, in order to monitor compliance with and otherwise enforce the terms of this Conservation Easement, the [***insert: BEI or CBEI***], the Development Plan and the Management Plan and to implement at Grantee's sole discretion Development Plan and Management Plan activities that have not been implemented, provided that Grantee shall not unreasonably interfere with Grantor's authorized use and quiet enjoyment of the Bank Property.

(c) To prevent any activity on or use of the Bank Property that is inconsistent with the purposes of this Conservation Easement and to require the restoration of such areas or features of the Bank Property that may be damaged by any act, failure to act, or any use or activity that is inconsistent with the purposes of this Conservation Easement.

(d) To require that all mineral, air and water rights as Grantee deems necessary to preserve and protect the biological resources and Conservation Values of the Bank Property shall remain a part of and be put to beneficial use upon the Bank Property, consistent with the purposes of this Conservation Easement.

(e) All present and future development rights appurtenant to, allocated, implied, reserved or inherent in the Bank Property; such rights are hereby terminated and extinguished, and may not be used on or transferred to any portion of the Bank Property, nor any other property adjacent or otherwise.

3. Prohibited Uses.

Any activity on or use of the Bank Property that is inconsistent with the purposes of this Conservation Easement is prohibited. Without limiting the generality of the foregoing, the following uses and activities by Grantor, Grantor's agents, and third parties are expressly prohibited:

(a) Unseasonable watering; use of fertilizers, pesticides, biocides, herbicides or other agricultural chemicals; weed abatement activities; incompatible fire protection activities; and any and all other activities and uses which may impair or interfere with the purposes of this Conservation Easement [*include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:*], except for [*insert specific exception(s)*] as specifically provided in the [*specify*: Development Plan *or* Management Plan].

(b) Use of off-road vehicles and use of any other motorized vehicles except on existing roadways [*include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:*], except for [*insert specific exception(s)*] as specifically provided in the [*specify*: Development Plan *or* Management Plan].

(c) Agricultural activity of any kind [*include the following language only if the Development Plan or Management Plan, including any adaptive management measures, specifies such an exception:*] except grazing for vegetation management as specifically provided in the [*specify*: Development Plan *or* Management Plan].

(d) Recreational activities, including, but not limited to, horseback riding, biking, hunting or fishing except for personal, non-commercial, recreational activities of the Grantor, so long as such activities are consistent with the purposes of this Conservation Easement and specifically provided for in the Management Plan.

(e) Commercial, industrial, residential, or institutional uses.

(f) Any legal or de facto division, subdivision or partitioning of the Bank

Property.

(g) Construction, reconstruction, erecting or placement of any building, billboard or sign, or any other structure or improvement of any kind ***[include the following language only if the Development Plan or Management Plan specifies such an exception:]***, except for ***[insert specific exception(s)]*** as specifically provided in the ***[specify: Development Plan or Management Plan]***.

(h) Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids or any other materials.

(i) Planting, introduction or dispersal of non-native or exotic plant or animal species.

(j) Filling, dumping, excavating, draining, dredging, mining, drilling, removing or exploring for or extracting minerals, loam, soil, sand, gravel, rock or other material on or below the surface of the Bank Property, or granting or authorizing surface entry for any of these purposes.

(k) Altering the surface or general topography of the Bank Property, including but not limited to any alterations to habitat, building roads or trails, paving or otherwise covering the Bank Property with concrete, asphalt or any other impervious material except for those habitat management activities specified in the Development Plan or Management Plan.

(l) Removing, destroying, or cutting of trees, shrubs or other vegetation, except as required by law for (i) fire breaks, (ii) maintenance of existing foot trails or roads, or (iii) prevention or treatment of disease ***[include the following language only if the Development Plan or Management Plan specifies such an exception:]***; and except for ***[insert specific exception(s)]*** as specifically provided in the ***[specify: Development Plan or Management Plan]***.

(m) Manipulating, impounding or altering any natural water course, body of water or water circulation on the Bank Property, and any activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or sub-surface waters ***[include the following language only if the Development Plan or Management Plan specifies such an exception:]***, except for ***[insert specific exception(s)]*** as specifically provided in the ***[specify: Development Plan or Management Plan]***.

(n) Without the prior written consent of Grantee, which Grantee may withhold, transferring, encumbering, selling, leasing, or otherwise separating the mineral, air or water rights for the Bank Property; changing the place or purpose of use of the water rights; abandoning or allowing the abandonment of, by action or inaction, any water or water rights, ditch or ditch rights, spring rights, reservoir or storage rights, wells, ground water rights, or other rights in and to the use of water historically used on or otherwise appurtenant to the Bank Property, including but not limited to: (i) riparian water rights; (ii) appropriative water rights; (iii) rights to waters which are secured under contract with any irrigation or water district, to the extent such waters are customarily applied to the Bank Property; and (iv) any water from wells that are in existence or may be constructed in the future on the Bank Property.

(o) Engaging in any use or activity that may violate, or may fail to comply with, relevant federal, state, or local laws, regulations, or policies applicable to Grantor, the Bank Property, or the use or activity in question.

4. Grantee's Duties.

(a) To ensure that the purposes of this Conservation Easement as described in Section 1 are being accomplished, Grantee and its successors and assigns shall:

(1) Perform, at a minimum on an annual basis, compliance monitoring inspections of the Bank Property; and

(2) Prepare reports on the results of the compliance monitoring inspections, and provide these reports to the Signatory Agencies on an annual basis.

(b) In the event that the Grantee's interest in this easement is held by, reverts to, or is transferred to the State of California, Section 4(a) shall not apply.

5. Grantor's Duties.

Grantor shall undertake all reasonable actions to prevent the unlawful entry and trespass by persons whose activities may degrade or harm the Conservation Values of the Bank Property or that are otherwise inconsistent with this Conservation Easement. In addition, Grantor shall undertake all necessary actions to perfect and defend Grantee's rights under Section 2 of this Conservation Easement, and to observe and carry out the obligations of Grantor under the *[insert: BEI or CBEI]*, the Development Plan and the Management Plan.

6. Reserved Rights.

Grantor reserves to itself, and to its personal representatives, heirs, successors, and assigns, all rights accruing from Grantor's ownership of the Bank Property, including the right to engage in or permit or invite others to engage in all uses of the Bank Property that are not prohibited or limited by, and are consistent with the purposes of, this Conservation Easement.

7. Grantee's Remedies.

If Grantee determines that a violation of this Conservation Easement has occurred or is threatened, Grantee shall give written notice to Grantor of such violation and demand in writing the cure of such violation ("Notice of Violation"). If Grantor fails to cure the violation within thirty (30) days after receipt of a Notice of Violation, or if the cure reasonably requires more than thirty (30) days to complete and Grantor fails to begin the cure within the thirty (30)-day period or fails to continue diligently to complete the cure, Grantee may bring an action at law or in equity in a court of competent jurisdiction for any or all of the following: to recover any damages to which Grantee may be entitled for violation of the terms of this Conservation Easement or for any injury to the Conservation Values of the Bank Property; to enjoin the violation, *ex parte* as necessary, by temporary or permanent injunction without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies; to pursue any other legal or equitable relief, including but not limited to, the restoration of the Bank Property to the condition in which it existed prior to any violation or injury; or to otherwise enforce this Conservation Easement. Without limiting the liability of Grantor, Grantee may apply any damages recovered to the cost of undertaking any corrective action on the Bank Property.

If Grantee, in its sole discretion, determines that circumstances require immediate action to prevent or mitigate injury to the Conservation Values of the Bank Property, Grantee may pursue its remedies under this Conservation Easement without prior notice to Grantor or without waiting for the period provided for cure to expire. Grantee's rights under this section apply equally to actual or threatened violations of this Conservation Easement.

Grantor agrees that Grantee's remedies at law for any violation of this Conservation Easement are inadequate and that Grantee shall be entitled to the injunctive relief described in this section, both prohibitive and mandatory, in addition to such other relief to which Grantee may be entitled, including specific performance of this Conservation Easement, without the necessity of proving either actual damages or the inadequacy of otherwise available legal remedies. Grantee's remedies described in this section shall be cumulative and shall be in addition to all remedies now or hereafter existing at law or in equity, including but not limited to the remedies set forth in California Civil Code Section 815, *et seq.* The failure of Grantee to discover a violation or to take immediate legal action shall not bar Grantee from taking such action at a later time.

(a) Costs of Enforcement.

All costs incurred by Grantee, where Grantee is the prevailing party, in enforcing the terms of this Conservation Easement against Grantor, including, but not limited to, costs of suit and attorneys' and experts' fees, and any costs of restoration necessitated by negligence or breach of this Conservation Easement, shall be borne by Grantor.

(b) Grantee's Discretion.

Enforcement of the terms of this Conservation Easement by Grantee shall be at the discretion of Grantee, and any forbearance by Grantee to exercise its rights under this Conservation Easement in the event of any breach of any term of this Conservation Easement shall not be deemed or construed to be a waiver of such term or of any subsequent breach of the same or any other term of this Conservation Easement or of any rights of Grantee under this Conservation Easement. No delay or omission by Grantee in the exercise of any right or remedy shall impair such right or remedy or be construed as a waiver.

(c) Acts Beyond Grantor's Control.

Nothing contained in this Conservation Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury to or change in the Bank Property resulting from (i) any natural cause beyond Grantor's control, including, without limitation, fire not caused by Grantor, flood, storm, and earth movement, or any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Bank Property resulting from such causes; or (ii) acts by Grantee or its employees.

(d) Enforcement; Standing.

All rights and remedies conveyed to Grantee under this Conservation Easement shall extend to and are enforceable by [*insert if State of California is Grantee:* CDFG and] the Third-Party Beneficiaries (as defined in Section 14(m)). These enforcement rights are in addition to, and do not limit, the rights of enforcement under the [*insert: BEI or CBEI*], the Development Plan or the Management Plan. If at any time in the future Grantor uses, allows the use, or threatens to use or allow use of, the Bank Property for any purpose that is inconsistent

with or in violation of this Conservation Easement then, despite the provisions of California Civil Code Section 815.7, the California Attorney General and the Third-Party Beneficiaries each has standing as an interested party in any proceeding affecting this Conservation Easement.

(e) Notice of Conflict.

If Grantor receives a Notice of Violation from Grantee or a Third-Party Beneficiary with which it is impossible for Grantor to comply consistent with any prior uncured Notice(s) of Violation, Grantor shall give written notice of the conflict (hereinafter "Notice of Conflict") to the Grantee and Third-Party Beneficiaries. In order to be a valid, a Notice of Conflict shall be given within fifteen (15) days of the date Grantor receives a conflicting Notice of Violation, shall include copies of the conflicting Notices of Violation, and shall describe the conflict with specificity, including how the conflict makes compliance with the uncured Notice(s) of Violation impossible. Upon issuing a valid Notice of Conflict, Grantor shall not be required to comply with the conflicting Notices of Violation until such time as the entity or entities issuing said conflicting Notices of Violation issue(s) revised Notice(s) of Violation that resolve the conflict. Upon receipt of a revised Notice of Violation, Grantor shall comply with such notice within the time period(s) described in the first grammatical paragraph of this Section. The failure of Grantor to issue a valid Notice of Conflict within fifteen (15) days of receipt of a conflicting Notice of Violation shall constitute a waiver of Grantor's ability to claim a conflict.

(f) [Add if nonprofit organization is Grantee] Reversion.

If the Signatory Agencies determine that Grantee is not holding, monitoring or managing this Conservation Easement for conservation purposes in the manner specified in this Conservation Easement or in the [*insert: BEI or CBEI*], the Development Plan or the Management Plan then, pursuant to California Government Code Section 65965(c), this Conservation Easement shall revert to the State of California, or to another public agency or nonprofit organization qualified pursuant to Civil Code Section 815.3 and Government Code Section 65965 (and any successor or other provision(s) then applicable) and approved by the Signatory Agencies.

8. Access.

This Conservation Easement does not convey a general right of access to the public.

9. Costs and Liabilities.

Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Bank Property. Grantor agrees that neither Grantee nor Third-Party Beneficiaries shall have any duty or responsibility for the operation, upkeep or maintenance of the Bank Property, the monitoring of hazardous conditions on it, or the protection of Grantor, the public or any third parties from risks relating to conditions on the Bank Property. Grantor remains solely responsible for obtaining any applicable governmental permits and approvals required for any activity or use permitted by this Conservation Easement [*insert if CDFG or another government entity is Grantee: , including permits and approvals required from Grantee acting in its regulatory capacity*], and any activity or use shall be undertaken in accordance with all applicable federal, state, local and administrative agency laws, statutes, ordinances, rules, regulations, orders and requirements.

(a) Taxes; No Liens.

Grantor shall pay before delinquency all taxes, assessments (general and special), fees, and charges of whatever description levied on or assessed against the Bank Property by competent authority (collectively "Taxes"), including any Taxes imposed upon, or incurred as a result of, this Conservation Easement, and shall furnish Grantee with satisfactory evidence of payment upon request. Grantor shall keep the Bank Property free from any liens (other than a security interest that is expressly subordinated to this Conservation Easement, as provided in Section 14(k)), including those arising out of any obligations incurred by Grantor for any labor or materials furnished or alleged to have been furnished to or for Grantor at or for use on the Bank Property.

(b) Hold Harmless.

(1) Grantor shall hold harmless, protect and indemnify Grantee and its directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (each a "Grantee Indemnified Party" and collectively, "Grantee's Indemnified Parties") from and against any and all liabilities, penalties, costs, losses, damages, expenses (including, without limitation reasonable attorneys' fees and experts' fees), causes of action, claims, demands, orders, liens or judgments (each a "Claim" and, collectively, "Claims"), arising from or in any way connected with: (i) injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Bank Property, regardless of cause, except that this indemnification shall be inapplicable to any Claim due solely to the negligence of Grantee or any of its employees; (ii) the obligations specified in Sections 5, 9 and 9(a); and (iii) the existence or administration of this Conservation Easement. If any action or proceeding is brought against any of the Grantee's Indemnified Parties by reason of any such Claim, Grantor shall, at the election of and upon written notice from Grantee, defend such action or proceeding by counsel reasonably acceptable to the Grantee's Indemnified Party [*insert if CDFG is grantee:* or reimburse Grantee for all charges incurred for services of the California Attorney General in defending the action or proceeding].

(2) Grantor shall hold harmless, protect and indemnify Third-Party Beneficiaries and their respective directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (each a "Third-Party Beneficiary Indemnified Party" and collectively, "Third-Party Beneficiary Indemnified Parties") from and against any and all Claims arising from or in any way connected with: (i) injury to or the death of any person, or physical damage to any property, resulting from any act, omission, condition, or other matter related to or occurring on or about the Bank Property, regardless of cause and (ii) the existence or administration of this Conservation Easement. *Provided, however,* that the indemnification in this Section 9 (b) (2) shall be inapplicable to a Third-Party Beneficiary Indemnified Party with respect to any Claim due solely to the negligence of that Third-Party Beneficiary Indemnified Party or any of its employees. If any action or proceeding is brought against any of the Third-Party Beneficiary Indemnified Parties by reason of any Claim to which the indemnification in this Section 9 (b) (2) applies, then at the election of and upon written notice from the Third-Party Beneficiary Indemnified Party, Grantor shall defend such action or proceeding by counsel reasonably acceptable to the applicable Third-Party Beneficiary Indemnified Party or reimburse the Third-Party Beneficiary Indemnified Party for all charges incurred for services of the California Attorney General or the

U.S. Department of Justice in defending the action or proceeding.

(c) Extinguishment.

If circumstances arise in the future that render the preservation of Conservation Values, [*include this phrase only if there are jurisdictional wetlands:* including wetland functions and values,] or other purposes of this Conservation Easement impossible to accomplish, this Conservation Easement can only be terminated or extinguished, in whole or in part, by judicial proceedings in a court of competent jurisdiction.

(d) Condemnation.

[*Use the appropriate paragraph:*]

[*If CDFG or other state agency is Grantee:*] Condemnation. This Conservation Easement is a "wildlife conservation easement" acquired by a State agency, the condemnation of which is prohibited except as provided in California Fish and Game Code Section 1348.3.

[*All other Grantees:*] Condemnation. The purposes of this Conservation Easement are presumed to be the best and most necessary public use as defined at California Code of Civil Procedure Section 1240.680 notwithstanding Code of Civil Procedure Sections 1240.690 and 1240.700.

10. Transfer of Conservation Easement or Bank Property.

(a) Conservation Easement.

This Conservation Easement may be assigned or transferred by Grantee upon written approval of the Signatory Agencies, which approval shall not be unreasonably withheld or delayed, but Grantee shall give Grantor and the Signatory Agencies at least sixty (60) days prior written notice of the proposed assignment or transfer. Grantee may assign or transfer its rights under this Conservation Easement only to an entity or organization: (i) authorized to acquire and hold conservation easements pursuant to California Civil Code Section 815.3 and Government Code Section 65965 (and any successor or other provision(s) then applicable), or the laws of the United States; and (ii) otherwise reasonably acceptable to the Signatory Agencies. Grantee shall require the assignee to record the assignment in the county where the Bank Property is located. The failure of Grantee to perform any act provided in this section shall not impair the validity of this Conservation Easement or limit its enforcement in any way. Any transfer under this section is subject to the requirements of Section 11.

(b) Bank Property.

Grantor agrees to incorporate the terms of this Conservation Easement by reference in any deed or other legal instrument by which Grantor divests itself of any interest in all or any portion of the Bank Property, including, without limitation, a leasehold interest. Grantor agrees that the deed or other legal instrument shall also incorporate by reference the [*insert: BEI or CBEI*], the Development Plan, the Management Plan, and any amendment(s) to those documents. Grantor further agrees to give written notice to Grantee and the Signatory Agencies of the intent to transfer any interest at least sixty (60) days prior to the date of such transfer. Grantee or the Signatory Agencies shall have the right to prevent any transfers in which prospective subsequent claimants or transferees are not given notice of the terms, covenants,

conditions and restrictions of this Conservation Easement (including the exhibits and documents incorporated by reference in it). The failure of Grantor to perform any act provided in this section shall not impair the validity of this Conservation Easement or limit its enforceability in any way. Any transfer under this section is subject to the requirements of Section 11.

11. Merger.

The doctrine of merger shall not operate to extinguish this Conservation Easement if the Conservation Easement and the Bank Property become vested in the same party. If, despite this intent, the doctrine of merger applies to extinguish the Conservation Easement then, unless Grantor, Grantee, and the Signatory Agencies otherwise agree in writing, a replacement conservation easement or restrictive covenant containing the same protections embodied in this Conservation Easement shall be recorded against the Bank Property.

12. Notices.

Any notice, demand, request, consent, approval, or other communication that Grantor or Grantee desires or is required to give to the other shall be in writing, with a copy to each of the Signatory Agencies, and served personally or sent by recognized overnight courier that guarantees next-day delivery or by first class United States mail, postage fully prepaid, addressed as follows:

To Grantor: [Grantee name]
 [Grantee address]
 Attn:_____

To Grantee: ***[insert the appropriate Grantee information:]***

[Department of Fish and Game]
[Region name] Region
[REGION ADDRESS]
[Attn: Regional Manager]

OR

[Grantee name]
[Grantee address]

[Remove/modify the following blocks as appropriate when CDFG or the USFWS are not signatories to the BEI or CBEI or third-party beneficiaries to the CE.]

To CDFG: [Department of Fish and Game]
 [Region name] Region
 [REGION ADDRESS]
 [Attn: Regional Manager]

With a copy to: Department of Fish and Game
 Office of General Counsel
 1416 Ninth Street, 12th Floor
 Sacramento, CA 95814-2090

Attn: General Counsel

To USFWS: United States Fish and Wildlife Service
[Field Office name] Field Office
[FIELD OFFICE ADDRESS]
Attn: Field Supervisor

[Remove/modify these blocks as appropriate when USEPA or USACE are not signatories to the BEI or CBEI or third-party beneficiaries to the CE.]

To USACE: U.S. Army Corps of Engineers
[District name] District
[DISTRICT ADDRESS]
Attn: Chief, Regulatory Branch

To USEPA: U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105
Attn: Director, Water Division

or to such other address a party or a Signatory Agency shall designate by written notice to Grantor, Grantee and the Signatory Agencies. Notice shall be deemed effective upon delivery in the case of personal delivery or delivery by overnight courier or, in the case of delivery by first class mail, three (3) days after deposit into the United States mail.

13. Amendment.

This Conservation Easement may be amended only by mutual written agreement of Grantor and Grantee and written approval of the Signatory Agencies, which approval shall not be unreasonably withheld or delayed. Any such amendment shall be consistent with the purposes of this Conservation Easement and California law governing conservation easements, and shall not affect its perpetual duration. Any such amendment shall be recorded in the official records of the county in which the Bank Property is located, and Grantee shall promptly provide a conformed copy of the recorded amendment to the Grantor and the Signatory Agencies.

14. Additional Provisions.

(a) Controlling Law.

The interpretation and performance of this Conservation Easement shall be governed by the laws of the United States and the State of California, disregarding the conflicts of law principles of such state.

(b) Liberal Construction.

Despite any general rule of construction to the contrary, this Conservation Easement shall be liberally construed to effect the purposes of this Conservation Easement and the policy and purpose of California Civil Code Section 815, *et seq.* ***[add if Grantee is nonprofit organization: and Government Code Section 65965]***. If any provision in this instrument is found to be ambiguous, an interpretation consistent with the purposes of this Conservation Easement that would render the provision valid shall be favored over any interpretation that would render it

invalid.

(c) Severability.

If a court of competent jurisdiction voids or invalidates on its face any provision of this Conservation Easement, such action shall not affect the remainder of this Conservation Easement. If a court of competent jurisdiction voids or invalidates the application of any provision of this Conservation Easement to a person or circumstance, such action shall not affect the application of the provision to any other persons or circumstances.

(d) Entire Agreement.

This document (including its exhibits and the [*insert: BEI or CBEI*], the Development Plan, and the Management Plan incorporated by reference in this document) sets forth the entire agreement of the parties and the Signatory Agencies with respect to the Conservation Easement and supersedes all prior discussions, negotiations, understandings, or agreements of the parties relating to the Conservation Easement. No alteration or variation of this Conservation Easement shall be valid or binding unless contained in an amendment in accordance with Section 13.

(e) No Forfeiture.

Nothing contained in this Conservation Easement will result in a forfeiture or reversion of Grantor's title in any respect.

(f) Successors.

The covenants, terms, conditions, and restrictions of this Conservation Easement shall be binding upon, and inure to the benefit of, the parties and their respective personal representatives, heirs, successors, and assigns, and shall constitute a servitude running in perpetuity with the Bank Property.

(g) Termination of Rights and Obligations.

A party's rights and obligations under this Conservation Easement terminate upon transfer of the party's interest in the Conservation Easement or Bank Property, except that liability for acts, omissions or breaches occurring prior to transfer shall survive transfer.

(h) Captions.

The captions in this instrument have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon its construction or interpretation.

(i) No Hazardous Materials Liability.

(1) Grantor represents and warrants that it has no knowledge or notice of any Hazardous Materials (defined below) or underground storage tanks existing, generated, treated, stored, used, released, disposed of, deposited or abandoned in, on, under, or from the Bank Property, or transported to or from or affecting the Bank Property.

(2) Without limiting the obligations of Grantor under Section 9 (b), Grantor hereby releases and agrees to indemnify, protect and hold harmless the Grantee's

Indemnified Parties (defined in Section 9 (b) (1)) from and against any and all Claims (defined in Section 9 (b)(1)) arising from or connected with any Hazardous Materials or underground storage tanks present, alleged to be present, released in, from or about, or otherwise associated with the Bank Property at any time, except any Hazardous Materials placed, disposed or released by Grantee or any of its employees. This release and indemnification includes, without limitation, Claims for (A) injury to or death of any person or physical damage to any property; and (B) the violation or alleged violation of, or other failure to comply with, any Environmental Laws (defined below). If any action or proceeding is brought against any of the Grantee's Indemnified Parties by reason of any such Claim, Grantor shall, at the election of and upon written notice from the applicable Grantee Indemnified Party, defend such action or proceeding by counsel reasonably acceptable to the Grantee Indemnified Party *[add if CDFG is Grantee: or reimburse Grantee for all charges incurred for services of the California Attorney General in defending the action or proceeding]*.

(3) Without limiting the obligations of Grantor under Section 9 (b), Grantor hereby releases and agrees to indemnify, protect and hold harmless the Third-Party Beneficiary Indemnified Parties (defined in Section 9 (b)(2)) from and against any and all Claims arising from or connected with any Hazardous Materials or underground storage tanks present, alleged to be present, released in, from or about, or otherwise associated with the Bank Property at any time, except that this release and indemnification shall be inapplicable to a Third-Party Beneficiary Indemnified Party with respect to any Hazardous Materials placed, disposed or released by that Third-Party Beneficiary Indemnified Party or any of its employees. This release and indemnification includes, without limitation, Claims for (A) injury to or death of any person or physical damage to any property; and (B) the violation of alleged violation of, or other failure to comply with, any Environmental Laws. If any action or proceeding is brought against any of the Third-Party Beneficiary Indemnified Parties by reason of any such Claim, Grantor shall, at the election or and upon written notice from the applicable Third-Party Beneficiary Indemnified Party, defend such action or proceeding by counsel reasonably acceptable to the Third-Party Beneficiary Indemnified Party for all charges incurred for services of the California Attorney General or the U.S. Department of Justice in defending the action or proceeding.

(4) Despite any contrary provision of this Conservation Easement, the parties do not intend this Conservation Easement to be, and this Conservation Easement shall not be, construed such that it creates in or gives to Grantee or any Third-Party Beneficiaries any of the following:

(A) The obligations or liability of an "owner" or "operator," as those terms are defined and used in Environmental Laws (defined below), including, without limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. § 9601, *et seq.*; hereinafter, "CERCLA"); or

(B) The obligations or liabilities of a person described in 42 U.S.C. § 9607(a)(3) or (4); or

(C) The obligations of a responsible person under any applicable Environmental Laws; or

(D) The right to investigate and remediate any Hazardous Materials associated with the Bank Property; or

(E) Any control over Grantor's ability to investigate, remove, remediate or otherwise clean up any Hazardous Materials associated with the Bank Property.

(5) The term "Hazardous Materials" includes, without limitation, (a) material that is flammable, explosive or radioactive; (b) petroleum products, including by-products and fractions thereof; and (c) hazardous materials, hazardous wastes, hazardous or toxic substances, or related materials defined in CERCLA, the Resource Conservation and Recovery Act of 1976 (42 U.S.C. § 6901, *et seq.*; hereinafter, "RCRA"); the Hazardous Materials Transportation Act (49 U.S.C. § 5101, *et seq.*; hereinafter, "HTA"); the Hazardous Waste Control Law (California Health & Safety Code § 25100, *et seq.*; hereinafter, "HCL"); the Carpenter-Presley-Tanner Hazardous Substance Account Act (California Health & Safety Code § 25300, *et seq.*; hereinafter "HSA"), and in the regulations adopted and publications promulgated pursuant to them, or any other applicable Environmental Laws now in effect or enacted after the date of this Conservation Easement.

(6) The term "Environmental Laws" includes, without limitation, CERCLA, RCRA, HTA, HCL, HSA, and any other federal, state, local or administrative agency statute, ordinance, rule, regulation, order or requirement relating to pollution, protection of human health or safety, the environment or Hazardous Materials. Grantor represents, warrants and covenants to Grantee and Third-Party Beneficiaries that activities upon and use of the Bank Property by Grantor, its agents, employees, invitees and contractors will comply with all Environmental Laws.

(j) Warranty.

Grantor represents and warrants that Grantor is the sole owner of the Bank Property. Grantor also represents and warrants that, except as specifically disclosed to and approved by the Signatory Agencies pursuant to the Bank Property Assessment and Warranty signed by Grantor and attached as an exhibit to the [*insert: BEI or CBEI*], [*choose applicable statement*]: there are no outstanding mortgages, liens, encumbrances or other interests in the Bank Property (including, without limitation, mineral interests) which may conflict or are inconsistent with this Conservation Easement *or* the holder of any outstanding mortgage, lien, encumbrance or other interest in the Bank Property (including, without limitation, mineral interest) which conflicts or is inconsistent with this Conservation Easement has expressly subordinated such interest to this Conservation Easement by a recorded Subordination Agreement approved by Grantee and the Signatory Agencies].

(k) Additional Interests.

Grantor shall not grant any additional easements, rights of way or other interests in the Bank Property (other than a security interest that is expressly subordinated to this Conservation Easement), nor shall Grantor grant, transfer, abandon or relinquish (each a "Transfer") any mineral, air, or water right or any water associated with the Bank Property, without first obtaining the written consent of Grantee and the Signatory Agencies. Such consent may be withheld if Grantee or the Signatory Agencies determine(s) that the proposed interest or Transfer is inconsistent with the purposes of this Conservation Easement or will impair or

interfere with the Conservation Values of the Bank Property. This Section 14(k) shall not limit the provisions of Section 2(d) or 3(n), nor prohibit transfer of a fee or leasehold interest in the Bank Property that is subject to this Conservation Easement and complies with Section 10. Grantor shall provide a copy of any recorded or unrecorded grant or Transfer document to the Grantee and Signatory Agencies.

(l) Recording.

Grantee shall record this Conservation Easement in the Official Records of the County in which the Bank Property is located, and may re-record it at any time as Grantee deems necessary to preserve its rights in this Conservation Easement.

(m) Third-Party Beneficiary.

Grantor and Grantee acknowledge that the *[include the agencies that will be third-party beneficiaries: CDFG, USFWS, USACE, and USEPA]* (the “Third-Party Beneficiaries”) are third party beneficiaries of this Conservation Easement with the right of access to the Bank Property and the right to enforce all of the obligations of Grantor including, but not limited to, Grantor’s obligations under Section 14, and all other rights and remedies of the Grantee under this Conservation Easement.

(n) Funding.

Endowment funding for the perpetual management, maintenance and monitoring of the Bank Property is specified in and governed by the *[insert: BEI or CBEI]* and the Management Plan.

IN WITNESS WHEREOF Grantor has executed this Conservation Easement Deed the day and year first above written.

GRANTOR: *[Notarization Required]*

Approved as to form:

[Remove or modify the approval block as appropriate, i.e., Grantee’s legal counsel if CDFG is not Grantee.]

BY: _____

General Counsel
State of California
Department of Fish and Game

NAME: _____

TITLE: _____

BY: _____
[Insert General Counsel Representative]
General Counsel

DATE: _____

[Delete this page if CDFG will not be Grantee. If the Grantee will be a government agency, that agency must include its own Certificate of Acceptance.]

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed by the Conservation Easement Deed by _____, dated _____, 20____, to the State of California, Grantee, acting by and through its Department of Fish and Game, a governmental agency (under Government Code § 27281), is hereby accepted by the undersigned officer on behalf of the Grantee pursuant to the Fish and Game Code.

GRANTEE:

[Remove or modify the approval block as appropriate if CDFG is not Grantee.]

STATE OF CALIFORNIA, by and through its
DEPARTMENT OF FISH AND GAME

By: _____

Title: _____
Authorized Representative

Date: _____